

**Principles of
Teaching in
the
Elementary
School**

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Principles of Teaching in the Elementary School

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Principles of Teaching in the Elementary School

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371
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Preface

This book replaces *Guiding Child Development in the Elementary Schools*. The changed title more accurately denotes the purpose for which the present book was written. While certain chapters have been retained with minor revisions, other chapters have been completely rewritten.

It has been the aim of the author to present the teaching and learning process in a manner understandable by inexperienced teachers and prospective teachers at the elementary and junior high school levels. Clearness and simplicity have been the aim, rather than scholarliness and comprehensiveness. There are numerous illustrations of actual teaching situations. There are very few questions concerning abstract discussions of educational theory. Basic principles of modern educational practice are presented as simply as possible, with emphasis upon the implications for actual classroom teaching.

The author is very grateful to the many educators who have made the writing of this book possible, and especially to the classroom teachers who gave so freely of their time in keeping detailed and daily records of pupil activities so that logs of the units could be made available for use in the text.

F. G. Macomber

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Contents

Chapter 1	INTRODUCING THE MODERN ELEMENTARY TEACHER	3
	Our Changing Education. A Visit to a Conventional Classroom. A Visit to a Modern Classroom. The Significance of the Teacher's Philosophy of Education. Problems for Study and Discussion. Readings for Further Study.	
Chapter 2	PRINCIPLES BASIC TO MODERN TEACHING	23
	The Purpose of This Chapter. Concepts Basic to Modern Teaching. Problems for Study and Discussion. Readings for Further Study.	
Chapter 3	THE EXPERIENCE UNIT	44
	Concept of an Experience Unit. Log of an Experience Unit on the Home in the Primary Grades. Problems for Study and Discussion.	
Chapter 4	THE EXPERIENCE UNIT (continued)	68
	Log of an Experience Unit on Weather. Problems for Study and Discussion. Readings for Further Study.	
Chapter 5	SELECTING AND PLANNING AN EXPERIENCE UNIT	120
	Selecting the Unit. Preplanning of the Unit. Problems in Preplanning. Illustration of Preplanning of a Unit. Problems for Study and Discussion.	
Chapter 6	GUIDING UNIT ACTIVITIES IN THE CLASSROOM	140
	Field Trips. Construction Activities. Research Activities. Reporting Activities. Discussion Activities. Creative and Appreciative Activities. Problems for Study and Discussion. Readings for Further Study.	
Chapter 7	CLASSROOM ORGANIZATION AND PUPIL CONTROL	168
	The Problem of Pupil Control. Classroom Control and the Curriculum. Room Organization and Morale. Gen-	

	eral School Atmosphere. Handling Problem Cases. The Daily Program. Reporting Pupil Progress. Grouping—Promotion and Retardation. Problems for Study and Discussion. Readings for Further Study.	
Chapter 8	THE MODERN ELEMENTARY CURRICULUM Purpose of the School. The Core Curriculum. Organization of the Core Curriculum. Electives in the Curriculum. Developing an Experience Curriculum within Conventional Subject Areas. Materials of Instruction. Subject Matter in the Experience Curriculum. The Community School. Problems for Study and Discussion. Readings for Further Study.	190
Chapter 9	LIVING IN A WORLD OF SCIENCE Importance of Science Experiences. Science Experiences and the Aims of Education. Science and Pupil Interest. Healthful Living and Science. Guiding Science Experiences. Teacher Education. Problems for Study and Discussion. Readings for Further Study.	214
Chapter 10	DEVELOPING COMPETENCY IN THE THREE R's Developing Reading Ability. Developing Mathematical Ability. Learning to Spell and to Write. Problems for Study and Discussion. Readings for Further Study.	230
Chapter 11	DEVELOPING APPRECIATIONS AND CREATIVENESS The Nature of Creative Ability. Factors Essential to Creative Expression. Creative and Appreciative Experiencing. Appreciations and Understandings. Masterpieces in the School of Today. Problems for Study and Discussion. Readings for Further Study.	259
Chapter 12	EVALUATING THE EDUCATIONAL PROGRAM A Concept of Evaluation. The Process of Evaluation. Measurement in the Evaluation Program. Observational Records for Evaluation. Recording and Reporting. Problems for Study and Discussion. Readings for Further Study.	279
Chapter 13	THE TEACHER AS COUNSELOR A Guidance Concept of Education. The Function of Guidance. Guidance in the Elementary School. Problems for Study and Discussion. Readings for Further Study.	297
Chapter 14	ADDITIONAL FACTORS IN TEACHING SUCCESS The School as a Co-operative Undertaking. The	315

Teacher and Community Ethics. Becoming One of the Community. Parent-Teacher Co-operation. Personal Factors and Their Relation to Teaching Success. The Teacher in a Conservative School. Teaching—Profession or Job? Becoming a Master Teacher. Problems for Study and Discussion. Readings for Further Study.

INDEX

Principles of Teaching in the Elementary School

42

1 · Introducing the Modern Elementary Teacher

OUR CHANGING EDUCATION

There probably has been no time within the past century when laymen and educators alike were not concerned with the changes taking place in the teaching and learning situations in the public schools of America. Social changes always bring about modifications of the major institutions of society, including the school. These institutional changes must be made at a relatively rapid pace in a highly dynamic society such as we live in at the present time; otherwise, the institutions soon fall so far behind the procession that they no longer can perform their functions properly.

In recent decades the tempo of change in the home, the church, and the school has been speeded up, and all evidence points to greater changes as we move into the atomic age with all of its potentialities for great social progress and for almost total destruction. Education has no choice but to strive to keep abreast of the times; otherwise it will fail to keep faith with the society which supports it and is dependent upon it.

Not only is the nature of our society changing rapidly, but psychological research is adding yearly to our knowledge of the human organism and its behavior. Many of the educational practices of today are in harmony with the psychology of the early part of the century, but contrary to what we now know of human nature. It is unfortunate but true that educators have not kept pace with scientific knowledge in anything like the manner in which medical men have modified their practices with their increased knowledge of the human being and of the science of medicine.

Any great modification of a social institution such as the home, the church, or the school inevitably creates controversy between those who advocate change and those who are opposed to such change. There is a decided tendency in education, as in business, politics, and religion, to

label those who are working for changes in the established pattern as "progressives" or "liberals" and to designate those who are reluctant to change or are opposed to change as "conservatives" or "traditionalists."

It is doubtful if any good purpose is served by attempting to characterize a "progressive" and a "conservative" in education. A so-called "progressive" who holds to his pet ideas overlong is looked upon as a conservative by those who have kept abreast of the latest psychological knowledge and modified philosophy of education. Neither "progressivism" nor "conservatism" can be characterized adequately, for both to a considerable degree are states of mind, and both are in stages of change. Certainly the "conservative" teacher of today does not teach reading by the alphabet method, nor is he the absolute dictator of the classroom as often pictured. Neither does one often see the so-called "capital-P Progressive" who allows his room to run riot in the interests of free pupil expression. There are degrees of progressivism and degrees of conservatism, with the great majority of teachers and administrators representing neither extreme. Possibly an adequate concept of a progressively minded teacher is that of one who is continuously studying human behavior in order to better understand the child and youth, who is a student of the big problems of group living, and who is always striving to find ways to improve the teaching and learning situations in the light of known psychological principles and the needs of society and of the individual living within that society.

What an educator believes makes a great difference in how he teaches. Probably this can best be illustrated by visits to the classrooms of two teachers. Both teachers are highly respected by pupils and parents, but one is of a conservative frame of mind and the other is considered progressively inclined.

A VISIT TO A CONVENTIONAL CLASSROOM

Miss Wheeler, whose classroom we shall visit first, teaches the fifth grade in the Lincoln School of a nearby city. She is a well-educated person who received her degree from a state teachers college some fifteen years ago and has since attended three summer sessions at the state university, taking additional work in English and the social studies in order to better understand these teaching fields. She is friendly, both to the children and to visitors, and makes us feel welcome. We understand from her principal that Miss Wheeler is highly respected by parents in the community for her high standards and excellent discipline and is well liked by her students. Miss Wheeler is enthusiastic about her teaching, and in the few minutes we have to visit

before class takes up she tells us that she particularly likes teaching geography and English and is quite proud of the fact that her children always stand high on the spring achievement tests which are given throughout the city. Last year her fifth grade was highest among the fifth grades of the city in both reading and language and was well up in all other subjects.

We glance around the room and are impressed with its neat appearance. The room has desks of the movable type which are, however, arranged in neat rows of six each. A well-spaced row of pupil-made art designs fills the pinning strip above the side blackboard, while the letters of the alphabet occupy a permanent position over the front blackboard. The forms of these letters bother Miss Wheeler somewhat. The penmanship system was changed a few years ago and the school board has not yet seen fit to have the new writing alphabet installed; consequently, not all the letters of the penmanship manual agree with the letters exposed to view at the front of the room. Two charts are on the small bulletin board between the door and the front wall. One chart shows the cumulative scores of each pupil on the weekly arithmetic tests. The other shows the daily schedule:

9:00 Opening exercises	1:00 Story
9:05 Arithmetic	1:15 Social Science
9:50 Language and spelling	2:00 Penmanship
10:30 Recess	2:15 Physical Education
10:45 Reading	2:45 Hygiene MWF, Science TTh
11:30 Music MWF, Art TTh	3:10 Study
12:00 Noon	3:30 Dismissal

We comment upon the fact that several children are already at work at their seats, although it is not yet nine o'clock. Miss Wheeler informs us that this is not at all uncommon. Most of the children are doing extra work for grade credits. Pupils who have their regular assignments in arithmetic and social science completed may work on special problems or projects, and these are counted as credit toward grades in these subjects. Competition among the brighter children is quite intense, and the special projects or extra-problems often determine which of these children will get A's. The names of honor children are announced in the Parent-Teachers' Association meetings and usually are published in the local paper.

The bell rings and the remainder of the children of the class come in quietly and take their seats. Miss Wheeler quickly takes the roll and inquires whether any child knows why Dorothy is not in school. Dorothy

apparently has the mumps, according to her friend Betty, and Miss Wheeler suggests that some of the pupils may want to write notes to Dorothy to wish her a speedy recovery. Miss Wheeler then asks the children to stand and leads them in the Pledge of Allegiance to the flag.

It is time for arithmetic, and the children in the front seats quickly pass out the corrected papers handed in as yesterday's assignment. The children often correct their own papers, but once every three or four days they must hand in their papers at the beginning of the class for the teacher to correct and score. This gives the teacher a fair sampling of each child's work for grading purposes and adds incentive for each child to do his homework every day as he never knows on which days the teacher will collect papers for grading. The teacher then calls the names of ten children and gives each child a problem from today's assignment to put on the board. The remainder of the children watch as the problems are written on the front and side blackboards, and then listen to each child explaining his problem. If an error is made, hands go up and the teacher calls upon a child for corrections. There are six problems of the assignment left, so these are assigned to other children to be placed on the board and then explained. Miss Wheeler then makes the assignment for the next day, taking several minutes to make sure that the children understand the sample problem in the book. During the remaining five minutes of the arithmetic period, there is a rapid drill on long division problems, a process basic to the reasoning problems upon which the class is working.

For language today the children are giving oral reports. There are six suggested topics in the language text on the theme "Something New." Each child was asked to select a topic in which he was interested. Outlines were prepared yesterday for the presentations and were discussed in class. The oral reports are to be given from notes following the outlines. Because he is interested in mechanical things, Jerry has chosen the topic "Something New in Science." He tells about a newly designed small airplane with retractable wings, which looks more like a bat than a conventional plane. He got his information from *Popular Mechanics Magazine*. He has cut out two pictures of the plane and passes them around for the class to see. Jerry is commended for a good report, with the suggestion that he should follow his notes a little more carefully as he forgot a part of his talk and had to add it at the conclusion. Mary Lou has chosen the topic "Something New in the Home" and tells about her family's new television in which the picture is projected on a small screen built into the wall of their recreation room. She does not understand just how it works, but it makes larger pictures than the built-in sets which most people have. Miss Wheeler suggests that it

would have been better for Mary Lou to choose something she understood and could have explained to the class. Mary Lou replies that she tried to find something else, but the new television set was the only thing they had in the home that was "different from what most of the other kids had." Miss Wheeler suggests kindly that it would be better to say "children" or "boys and girls" than "kids," to which Mary Lou agrees with a timid smile. And so the reports go on for most of the forty minutes. Near the close of the period the class is told that the remainder of the reports will be heard tomorrow immediately following the assigned spelling lesson. Helen asks if they may find out the grades given on today's reports and is told that she may learn her grade during the recess period if she wishes to know it at that time, but that there isn't time to tell each child his grade now as it is time for the recess bell. Three children remain in their seats when the others leave for recess. These children learn their grades on their reports and join the others on the playground. The teacher then turns to us for a short visit. She explains that she does not have to go out with the children as there is a physical-education teacher supervising the morning recess for the older children.

We spend the next ten minutes talking with Miss Wheeler about her work and her children. She is quite concerned about Elden and Susan. Both are older than the other children of the class, but are not able to do the work of the fifth grade, and she is debating whether or not to fail them at the end of the year. They spent two years in the fourth grade and are getting too old for the rest of the children of the class. However, they won't be able to do sixth-grade work next year; and Miss Wheeler does not believe that it is fair to the rest of the children or to the sixth-grade teacher to allow them to pass. She believes that if she keeps Elden and Susan in the fifth grade for another year they will be able to do the required work fairly well. Elden, however, is getting to be something of a disciplinary problem, and Susan just sits and daydreams unless you keep prodding her to get her assignments. Also, the two children are going to bring down the class average in the June achievement tests; and, consequently, it is very doubtful if Miss Wheeler's class will rank at the top of the city schools this year.

Recess is over, and the children come in for reading. They are beginning a new story of Jerry, the burro, and his master, an old prospector who has hunted the desert for gold these many years without success. It is a rather exciting story of the Arizona desert with narrow escapes from Indians, days of thirst and hunger, the love of man and beast, and the final joy of discovered gold with its promise of peace and plenty for both man and donkey for the rest of their lives. Miss Wheeler arouses

interest by asking the children if they have ever seen a burro. Kenneth has lived in Nevada, and he tells the class of a photographer who had a little donkey on which you could get your picture taken. He will bring a picture of himself and the burro tomorrow. Miss Wheeler gives just enough of the story to get the children interested, and then tells them to read silently for ten minutes. She asks the children to write down any words which they do not understand. After ten minutes of study the class is called to attention and the beginning of the story is discussed briefly. What was the name of the prospector? Where did the story take place? What is the season of the year when the story begins? What are some of the words not understood by members of the class?

Pupils now are called upon to read orally, each coming to the front of the class. All follow the reading carefully, for any member of the class may be called upon to go on with the reading at any point. At intervals the teacher halts the reading to ask the class to criticize the readers, and makes suggestions to help various members of the class improve their oral reading. Miss Wheeler gives the class the last fifteen minutes for study, after first telling the pupils that she will expect each of them to read the story before class time tomorrow, and that she is going to give them an objective test on the story at the beginning of the reading period.

It is Tuesday and the day for art. The art supervisor comes in only twice a month, so that the room teachers have to teach the art most of the time, following the general program for the city worked out by the supervisor. There generally is some theme to be followed. For instance, the children usually work on Christmas cards, Christmas pictures, and similar objects during the month of December, with valentines coming in February along with art work suitable for Lincoln's and Washington's birthdays. Because there seems to be no theme that fits April other than showers and spring flowers, and the children worked on these in the fourth grade, they are working on interesting designs at the present time. Some of these designs probably will be incorporated into May baskets near the end of the month. The practice on designs gives excellent training in art techniques and is especially valuable for helping the children to learn good color combinations. They can make rug designs, linoleum designs, wallpaper designs, or even designs for cloth if they want to. The best designs each week are posted on the blackboard pinning strip. Miss Wheeler and the art supervisor have cut out and mounted a number of commercial designs from color illustrations in magazines, and Miss Wheeler has on display the designs she created in a summer art class a few years ago. The children are encouraged to make their own designs, but to feel free to utilize the illustrations for ideas or as models.

Art materials are passed out, and soon all are busily engaged with water colors and crayons. The children are allowed to go to the chalk rail at the front of the room to examine the illustrations without asking permission, but are cautioned not to talk in the process; otherwise the privilege will have to be withdrawn. Miss Wheeler passes among the children, answering questions and making suggestions until the bell rings for noon dismissal.

At 1:00 the children come in from the playground and settle down for the story period. Miss Wheeler is reading the story "Misty of Chin-coteague," and the children are enthralled by the adventure of children and wild horses. The story period comes to an end all too quickly, but it is time for social science, and the children get out their books without protest. The theme of the fifth-grade social science is "Our Latin-American Neighbors." Miss Wheeler explained to us just before the afternoon class took up that although fifth-grade social science is largely geography, she did try to bring in some of the history of the peoples of Latin America. Right now they are studying about Brazil, and the children have been making product maps of that country. They started out by studying the history of Brazil. Miss Wheeler does not like the textbook too well for it does not give enough of the history of the individual countries. She adds, however, that it probably presents about as much as they have time to study during the year if they learn the geography of these countries as well as they should. Also, both she and the children like the geography better than the history, so that maybe it is just as well not to have more history. Also, the emphasis in the spring achievement tests is upon geography rather than upon history.

The period starts off with a game to review the geographical and historical facts of the countries studied up to this point, including historical facts on Brazil. The room is quickly divided into two teams, with George and Patricia choosing sides. The game resembles a spell down, with the teacher asking questions first of one side, then of the other. Instead, however, of a child's having to take his seat if he misses a question, his wrong answer counts as a point against his side. The game is begun with each side having 100 points. The object is to see how few points you can lose. The game starts by the teacher asking Manuel to locate Tampico on the map. He has ten seconds to do so. This is easily accomplished. Susan then is asked to name a city of Colombia and tell something for which it is important. Her answer is wrong, so the question is asked of a boy on the other side. The game goes on until each member of the class has been asked a question. Patricia's side is declared the winner. George requests that they keep the same sides and be allowed to play the game again tomorrow. Miss Wheeler agrees to this and sug-

gest that the children do some reviewing before then, especially those who missed their questions.

A discussion of today's assignment follows the game. The children have been assigned the section in their textbooks dealing with the chief products of Brazil. The children answer the teacher's questions by telling about some of the chief industries and products of Brazil—hardwoods, coffee, rubber, stock raising, cotton, mining, and others. Finally Miss Wheeler tells them that there are two important industries mentioned in the textbook which have not been named. She suggests that the children restudy the section to see if they can find out what they are. Soon the lost industries are located, and the children are given the few minutes left to work on their products maps. There is no assignment for tomorrow, but Miss Wheeler will expect the maps to be completed and ready to hand in at the close of the period.

Fifteen minutes of penmanship drill come next, with the first five minutes spent in group drill to the count, followed by ten minutes of practice following the writing manual. Miss Wheeler passes among the children as they practice their writing lessons and makes suggestions to individuals, sometimes on their writing positions, sometimes on their letter forms. She notices that several of the children are making faulty downstrokes on the letter *t*, so she demonstrates at the board just how it should be done. She has the children make a number of *t*'s while she counts for the proper rhythm, and then allows the class to go back to the individual writing exercises.

At 2:15 the children go to the gymnasium for physical education. We ask Miss Wheeler about the science study of the fifth grade and learn that a new textbook in science has been adopted, one she likes quite well, although she wishes the unit on birds came later in the spring when there were more birds around for the children to observe. As it is, there are only the winter birds to see as they study this unit, and Miss Wheeler thinks it makes the textbook easier to understand if the children can see the things about which they are studying. She does have some good slides to supplement the text, however; and the children are making their own notebooks on birds. They are making drawings of the different birds from the colored slides and from the colored illustrations in the book.

The children come back at 2:45 and the science lesson begins. They are going to study about water birds today, and Miss Wheeler shows slides of several species of waterfowl. This takes about ten minutes. There is a short discussion of the habits of ducks and geese, and the children are then allowed to work on their notebooks. As the textbook has some good illustrations of waterfowl, the children are told to use

these as models from which to make their own drawings. Miss Wheeler tells the children that because the last period is a study period they may work right up to dismissal time on their notebooks if they wish, or they may stop at 3:10 and spend the last twenty minutes on their arithmetic for tomorrow.

We take our leave at this point, after thanking Miss Wheeler for a pleasant day. We are invited to return at any time we may wish to do so.

A VISIT TO A MODERN CLASSROOM

Our next visit is to the classroom of Mrs. Jordan, who teaches the sixth grade of the Longfellow School of a small city reputed to have a very up-to-date school system. We have made arrangements for the visit with the superintendent, who has recommended Mrs. Jordan as an excellent teacher and one who is continually trying to find ways to improve upon her teaching. Her school principal encourages the teachers to experiment and exercises considerable leadership in the improvement of the curriculum of the school. We arrive some thirty minutes before time for the class to assemble in order that we may have a few minutes to visit with Mrs. Jordan. We are a bit startled by the appearance of her classroom, for it is very different from Miss Wheeler's room. The school was built only a few years ago and was planned co-operatively by the teachers, the administration, and the architect. Mrs. Jordan's classroom is large, with blackboard only at the front, a bulletin board and large bookshelves lining one side wall. A glass partition and a glass door, taking in approximately half of the rear wall, separate the main room from a fairly large committee and workroom in which there are built-in storage cabinets and a sink, a woodworking bench, and a table and six chairs. Mrs. Jordan informs us that the teachers wanted both a committee room and a workroom for each grade, but that they had to settle for one room because of building costs.

The main room is equipped with tables and chairs rather than with individual desks, and these are arranged so that the pupils can sit in groups of six or eight. The tables are large enough for two pupils each, and are constructed so that they will fit together to form larger worktables when so desired. Mrs. Jordan says that the tables and chairs are now arranged in groups—rather than in a semicircle, for instance—because the children are organized into committees for their major unit study. We inquire what unit they are working on and are told that it is a unit called "Resources of the Region." We hardly need to be told this, for the room itself is ample evidence of the fact, with its various exhibits of products of the factories and farms of the region. A large mural cov-

ers much of the side wall and depicts the process "From Iron Ore to Finished Steel."

We comment upon the schedule posted on the bulletin board and are told that it is worked out for a week in advance by a pupil planning committee. The schedule we see is for this week, and on Friday the committee will have next week's schedule ready to be posted. Mrs. Jordan usually meets with the committee as they do their planning, but finds that less and less guidance is needed on her part. The pupils are becoming quite capable of intelligent planning of the work to be done. We examine the schedule more closely. (See facing page.)

While we have been talking, several children have come in and quietly gone about their work. The bell now rings, and the remainder of the children come in and take their seats. Without waiting for a directive from the teacher, one of the boys, who we later learn is the class president for the month, comes to the front of the room and calls the class to order. He then requests one of the girls to lead the class in the Pledge of Allegiance. When this is done, he asks if there are any announcements to make or current events upon which anyone desires to report. One of the boys announces that the special events committee omitted an item in their report on Monday. There will be a county track meet in a nearby town Saturday, and the local high-school team is entered. Mrs. Jordan suggests that there may be some reports ready on arrangements for tomorrow's field trip, but that these should be held over until the social studies period in the afternoon, when they will have to devote some time to further planning of the trip to the college agricultural station. As there is no further business, the class is relinquished to the teacher, who states briefly that they may work on their arithmetic. The children go quietly to their lockers, get out their arithmetic materials, and arrange themselves in groups around the tables. Two tables have to be moved to suit the size of one group. Mrs. Jordan explains to us that the children work at their own rates of speed in arithmetic, but that the children of each of the several groups are close enough in ability to do considerable group work. Mrs. Jordan suggests that we may like to sit in with some of the groups to see what they are doing. We are told that two of the groups are working on what normally is thought of as fourth- and fifth-grade arithmetic. These children are of rather low potential in arithmetic, and a number of them are considerably below sixth-grade reading ability. They are using workbooks developed by the city school arithmetic committee for use by children who have difficulty with arithmetic. "We could, of course, use fourth- and fifth-grade arithmetics, but most of these are marked as such, or have been used previously by the children; so that the committee

thought it best to develop their own workbooks for sixth graders." The workbooks contain a large number of reasoning problems involving arithmetical concepts and ample practice material of related processes. Transition from one step to another is made much more slowly than in the usual textbook. The children of the slow group all recognize and accept the fact that they have difficulty with arithmetic and know that others in the class are working with much more difficult problems. There is no penalty or stigma attached to being in one of the slower groups, and the children accept the situation with little concern other than to do their work as well as they can. One group of five children of quite high mathematical potential has completed the work normally taught in seventh grades in other cities of the state and is working problems out of an eighth-grade textbook.

We ask Mrs. Jordan if all the children's work in arithmetic is taken from textbooks and are told that often the work of several days at a time is related to the major social studies unit or to other work of the school. Recently the children spent quite a bit of time making graphs to show production data, with all the children of the room working together. The children of low mathematical ability, of course, made quite simple graphs and worked with comparatively simple data, while some of the other children made quite complex graphs.

We spend the remainder of the period observing the study of the several groups. Mrs. Jordan confers with one group for several minutes, and then moves to another. The children explain problems, ask questions, and receive needed help. We note that there is apparently little difference in the interest of the slow and the fast groups and comment on this to Mrs. Jordan. We are told that each child is working on arithmetic he can understand, and that interest is related to successful achievement rather than to ability alone. We agree that this certainly seems to be the case.

During the recess period we have an opportunity to talk with Mrs. Jordan for a few minutes about the language arts. Much of the language arts program develops out of the need for speaking and writing in connection with the total activities of the day. For instance, the class has done considerable letter writing to arrange for excursions to several of the industrial plants of the community. Then there are the thank-you letters to be written for courtesies extended during these visits. Letters must go home to parents to request permission to take extended trips such as the one the class is taking tomorrow to the college agriculture station some forty-six miles from the school. Much of the work of the unit on community resources is done through special interest committees, and this entails a large amount of individual and group re-

porting, both within the committees themselves and to the class as a whole.

Language errors made in writing and in speaking are quite carefully noted by the teacher, and these errors become the basis for corrective study. Much of this study is individual in nature; but a great deal of it is done by the group as a whole, for many errors are common to a large number of children. While it is true that several of the children are unable to do much generalizing on language usage, many are developing real understandings of those principles of grammar functional at this level. Much of the spelling is centered on learning words needed in written reports and new words appearing in context. In addition, however, the children use a spelling workbook, with the work largely individualized. Some of the children learn to spell so much more rapidly than others that it is not possible to keep them together without handicapping the good speller or discouraging the poor one. It is interesting to note that some of the slow children in arithmetic are among the good spellers of the class, and some of the more capable students in arithmetic have difficulty with their spelling.

We have no time now for further discussion with Mrs. Jordan because the children return from recess and take their seats. The period begins with a short planning session. A social studies committee wants to use the tape recorder to practice a report which is to be presented as a panel discussion, for they want to hear what the report sounds like before it is presented to the class. They also request that Gerald be allowed to come with them and run the tape recorder. This is agreed to, and the children are told that they may have the committee room for their work. Mrs. Jordan then suggests that the remainder of the children work on the improvement of their reading or on their spelling. They may work individually on either reading or spelling, or may work on individual written reports if they need the time for that. She would like to have Reading Group Three meet with her around the tables near the front corner of the room so that she can work with them. Mildred is excused from the reading group because she is a member of the social studies committee practicing with the recorder. Reading Group Three, we are told hurriedly by Mrs. Jordan before she joins the group, consists of better-than-average readers. She tries to work with each of the four reading groups at least twice a week, either in the language arts period or in the free reading period, to help them improve speed and comprehension, or work on research skills needed in their studies. We decide to join the group in the committee room for a short time and then sit in on the reading group.

We spend the next thirty minutes listening to the rehearsal of a

panel discussion by five children under the chairmanship of one of the boys of the class. The committee has been making a special study of the history of the steel industry in the region. They are going to show a film borrowed from one of the large steel corporations, and then give a panel discussion of the film. They studied the film yesterday and prepared notes for their discussion, but they wanted to try it out on the recorder before presenting it to the class. The chairman suggests that the members of the committee first study the questions given in the outline prepared yesterday and think about what they are going to say. The discussions will be informal, but based upon these questions, which will be presented to the committee by the chairman. The children soon signify their readiness to begin, and Gerald starts the recorder. Approximately fifteen minutes are spent in discussing the origin of the steel industry and its importance to the community and nation, and telling why the region is well suited to the industry. The recording is then played back, and the children discuss its good and poor points. "It sounds awfully dry." "Couldn't we pep it up a bit?" "Mary sounds like she was scared." "I think we have too many questions. Wouldn't it be better to just have three or four?"

We leave the committee to their discussion and join the reading group. They are in the midst of a timed test; therefore, we watch quietly until the teacher calls "time." She then reads the correct answer to each question and asks each pupil to place his score on his paper. She next asks for the number of children missing each of the questions. Three children missed question 5, four missed question 8, and two missed question 11. None of the other questions were missed by more than one child, and several were answered correctly by all. Questions missed by more than one pupil are discussed to determine the source of error, and new words or strange combinations of words are discussed to aid in pupil understanding. The pupils had been instructed to read through the selection as rapidly as they could with understanding and to raise their hands when they had completed the reading. Mrs. Jordan had kept time on each pupil and noted his time of completion. When all had finished the reading, she had given the test to determine comprehension.

The group is given the balance of the time to work on individual spelling or reports. Mrs. Jordan joins the children in the committee room and remains with them until time for music.

The music, we learn, often is an outgrowth of the activities of the major unit study; and special music periods are not always scheduled. However, since the class is doing little with music in the present unit,

the planning committee has scheduled special periods for the past several weeks. Today the children are going to listen to a special education broadcast from the state college. These broadcasts are scheduled from 11:30 to 12:00 on Monday, Wednesday, and Friday of each week. The present series is based on the music of American composers and introduces a new composer each week, devoting part of the broadcasts to the biography of the composer and the remainder to his music. This week the composer to be introduced is Edward MacDowell. There is no specific time set throughout the year for music. It now is scheduled for 11:30 in order that the class can take advantage of the music-appreciation series of the state college broadcast.

We spend an enjoyable half hour listening to an excellently prepared broadcast dealing with the life and works of Edward MacDowell and then join the class for lunch at the cafeteria.

We ask Mrs. Jordan about the work of the afternoon and, in particular, about the unit "Resources of the Region," which will take up all the afternoon except the physical education period. We learn that while there are broad areas within which the work of each grade is developed, each class has a great deal of freedom in selecting its particular units and gives considerable thought to the many possibilities before making its final selections. The theme out of which the work of the sixth, seventh and eighth grades develops is "Understanding our Community and Region." Units may be historical in nature, they may be industrial in character, or they may deal with such problems as recreation, government, or any of the other big functions of group living. Children of the sixth grade, Mrs. Jordan informs us, are much more apt to select such units as "Weather and Climate," "Conservation of our Natural Resources," "Plant Life of Our Region," or "Industries of the Community" than they are to select one dealing with problems of government, religion, recreation, and similar functions. We wonder how the school prevents duplication of units at the various grade levels and are told that records are kept of each group as it progresses through the elementary school, and that each teacher then knows what units have constituted the work of each class prior to the present time. Some of the teachers believe that specific units should be prescribed for each grade; others would have no prescription of any kind. The present plan represents a compromise between these two extreme positions and seems to be well accepted by both teachers and pupils. At the beginning of the year, the children of the class study the possible units and evaluate the work of past years. Mrs. Jordan tries to guide their thinking so that they do not select units of the same type for the whole year. She likes

to have one historical unit, unless they have spent a large part of their time in the fifth grade upon historical studies; and she hopes that at least one of the units will have great possibilities for science, for she does not believe that a special science period is either desirable or necessary. She seldom has any worries on this score, for most units have a great deal of science in them. The present unit is a good illustration of this. Opportunities for studying science in its relation to developing resources of the community and region are almost limitless.

The present unit has been in progress now for nine weeks, and there will be some difficulty in rounding it out by the close of the year. The children could go on with it almost indefinitely if their interest continued at the present high pitch.

The first twenty minutes of the afternoon is devoted to last-minute checking and planning for the field trip tomorrow. The trip has been arranged by the committee making a special study of stock raising in the region. They have made arrangements with the dean of the college of agriculture to visit the college farm to study livestock. At the suggestion of one of the men at the college, the class is also going to visit a farm near the college where purebred beef cattle are raised. The class will go as a group in a large bus. The city has a contract with a bus transport company to furnish transportation at a reasonable cost for field trips. The board of education pays the entire cost of trips which are not over ten miles in distance, and for which the bus is not retained for the day. For longer trips, and for trips for which bus and driver must remain with the group, part of the costs must be borne by the class. The present trip will cost each class member seventy-five cents. The school board pays the cost for any child who cannot otherwise go on a trip, but Mrs. Jordan tells us that there is almost never a need for this, as all parents of the district seem to be willing and able to pay the small sums assessed them during the year.

Collection of transportation money takes a few minutes, and there is a last-minute check to make sure that each child understands what he is to bring for the picnic lunch. Children who have thus far forgotten to bring their permission slips from parents are reminded that they must bring them without fail in the morning. Part of the period on Monday was spent in discussing the things the class hoped to see and the questions they wanted to investigate on the trip, so that no further time is needed for this. The chairman of the committee in charge reminds the class that the bus is leaving at 8:30 A.M. and that everyone must be sure to be at school before that time. They will meet in the classroom and go to the bus as a group. That way, the chairman tells the class, the com-

mittee can check to make sure that everyone is present and can collect the permission slips and the transportation money from those who failed to bring them today.

The business of the trip being completed, Mrs. Jordan takes charge of the class and makes a rapid check with the chairman of each of the several work committees to find out how each committee is planning to use the remainder of the period. Selma's group would like permission to go to the library to find more information on petroleum and its by-products. Billie's committee is preparing a series of slides to show the importance of lumbering in the region and would like to work on this project. George and his committee would like to study further the film on steel production, for in their panel-discussion practice this morning it became clear that there were some parts of the film that they were not sure about. Mrs. Jordan suggests that George see the principal to learn if anyone has scheduled the projection room for this period and, if not, to ask if he and his committee may use it. George has asked the principal about the use of the projection room during the noon hour and has permission if it is "Okay with Mrs. Jordan." It is okay. Wilma and her committee would like to use the committee room to work on a dramatization which they will use in their report of progress to the class next week. The chairman of the fifth committee says his group wants to study individually on its problem, and will remain in the room and work with reference materials there. "Some of the kids may need to go to the library, however." The committees are to begin their work in the short time remaining before the physical education period and may continue it afterward.

We visit from group to group until the bell sounds for physical education, and then talk with Mrs. Jordan for a few minutes before going to the gymnasium to see the activities there. The physical-education period has to be scheduled for the same time each day because it is under the direction of a special teacher, and because the gymnasium is used by other classes. Mrs. Jordan often works with the physical-education teacher and always does so when the class is developing rhythmic activities in connection with a unit. At the present time the children are doing square dancing, and Mrs. Jordan is glad to have the half hour to take care of accumulated tasks in the classroom. She may work on the permanent records of the children, a task for which there never seems to be enough time. We thank Mrs. Jordan for a most enjoyable day, go to the gymnasium for some fifteen minutes to watch the square dancing, pay our respects to the principal, and leave the school building.

THE SIGNIFICANCE OF THE TEACHER'S
PHILOSOPHY OF EDUCATION

Teachers teach differently because they think differently. To Miss Wheeler the responsibility of the school is primarily to see that the children learn what adults think children should know about history, geography, arithmetic, language, and the other subjects of the school and that they master the skills of arithmetic, writing, spelling, and reading necessary for earning a living and for communicating with others. The school is interested in the children's becoming good citizens, but this is to be accomplished chiefly by precept. Children become good citizens by learning to obey, by learning to follow directions, by learning the history of the United States, by studying about the great leaders of America, and by learning to read, write, spell, and solve arithmetic problems.

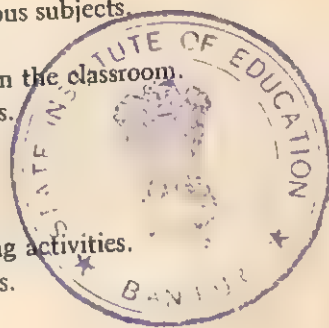
The reader will recognize that this is an extreme statement, and does not do justice to Miss Wheeler. Miss Wheeler is interested in her pupils and in the prestige of the school. She is teaching as she believes and is giving her full energies to her work. The important thing to recognize, however, is that to Miss Wheeler education centers in the subject matter to be learned rather than in the child to be guided into desired learning activities. She evaluates her teaching by the extent to which the child has mastered the desired subject matter and skills rather than by his behavior and personality developments. Mrs. Jordan, on the other hand, sees the function of education as that of guiding children into those learning experiences essential to the development of desired behavior patterns, intellectual as well as physical, social, and emotional. She sees teaching primarily as guiding child development along desired lines rather than as teaching subjects to children.

The two teachers differ greatly in their psychological beliefs. Miss Wheeler believes that children will learn to express themselves through music, art, and other media chiefly by imitating the expression of others superior in expression to themselves. She also believes that the techniques of expression must come before the child can exercise any creativeness of his own. Mrs. Jordan, on the other hand, believes that all children possess creative ability, and that they grow in this ability as they develop ideas which they wish to express. The techniques are best developed through this purposeful expression. There are many other points of view on which the two teachers differ. These will be discussed later. The foregoing examples are adequate to illustrate the importance

of the teacher's beliefs in education, the manner in which these beliefs affect his ways of teaching, and the differences in educational procedure brought about by differences in educational philosophy.

PROBLEMS FOR STUDY AND DISCUSSION

1. It is often stated that teaching is becoming more nearly a profession and is less and less a trade. Defend or criticize this statement in the light of modern educational philosophy and psychology.
2. What are the basic differences in the philosophy and psychology of the more conventionally and progressively minded teachers or schools in regard to the following factors?
 - (a) Class standards of attainment in the various subjects.
 - (b) The problem of control or discipline.
 - (c) The nature and place of subject matter in the classroom.
 - (d) The teacher's role in the learning process.
 - (e) The matter of assignments.
 - (f) Marking (grading) and promotion.
 - (g) Basis for grouping pupils.
 - (h) Competition and co-operation in learning activities.
 - (i) The daily schedule or program of studies.
 - (j) The mastery of techniques.
 - (k) Creativeness in learning.
3. The phrases "subject-centered curriculum" and "experience curriculum" are often heard today in discussions of educational problems. What are the basic differences in the concepts of the learning process held by advocates of these two schools of thought?
4. Differences between so-called "conservatives" and "progressives" in education are largely differences in degree rather than in kind. Criticize or defend this statement.



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371

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22 *Introducing the Modern Elementary Teacher*

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2 · Principles Basic to Modern Teaching

THE PURPOSE OF THIS CHAPTER

It is not the purpose of this chapter to discuss at length the principles of learning and the philosophical concepts basic to modern elementary teaching. Readers of this book already will have developed an understanding of many, if not all, of these principles and concepts through their studies in psychology and in principles of education, and through their direct experience with guiding children in their many learning activities. It is, rather, the purpose of this chapter to present the principles and concepts that are basic to later chapters in this book and to show how these fundamental ideas determine the teaching process in the elementary school.

A teacher's philosophy of education grows out of his understanding of the nature and the needs of the child, his understanding of the nature of the learning process, and his understanding of the nature and the needs of the society to be served by the school. This philosophy determines his conception of the aims and purposes of education and, in turn, the classroom curriculum, including the teaching process itself.

CONCEPTS BASIC TO MODERN TEACHING

1. *Education must contribute to the democratic way of living.* This is a principle to which all or practically all educators subscribe. There is not complete agreement, however, on what constitutes the democratic way of life; nor are educators of one mind on ways and means of attaining desired ends. For instance, there is general acceptance of the idea that a major function of the school is to aid in the development of good American citizenship. More than this, there is general concurrence that good citizenship involves the ability to think intelligently on major social and political problems of the day and the

inclination to exercise one's franchise at election time. There is disagreement, however, over the manner in which public education can make its contribution to the development of these desirable behavior patterns. Many persons, both teachers and laymen, believe that the best way for the elementary schools to develop good citizenship is to make children behave, make them respect authority in the school and in the home, and train their minds through a highly academic and relatively abstract curriculum. Others believe that if the school is to contribute to the development of democratic ideals and ways of living, the school itself must be a democracy in which the children participate in the planning as well as in the doing, and practice daily the ideals of democracy.

There is now general agreement among modern teachers and psychologists that desirable ways of thinking and acting can be developed best by guiding the learner into situations in which he will gain satisfactions from these desired ways of behaving. Since it is agreed that democracy requires citizens who can think intelligently on the big problems of living, that the school should make major contributions to this end, and that a child, or adult, learns primarily to the extent that he has experienced, then the school must not only be a democratic institution, but its curriculum must develop out of the real problems of living. In other words, the classroom itself must be a continuous experience in democratic living in which the pupil is an active participant in planning and doing and in evaluating the outcomes of his behavior.

Teachers of past decades too often have been directors or even dictators rather than democratic leaders. Children have been told what to do, how to do it, and what not to do, and have been rewarded or punished as the case warranted to secure compliance with assignments and rules. This is good education for an autocracy; it is not good education for a democracy. Children must learn to respect authority in a democracy, it is true. This respect, however, should develop from a belief that authority is self-imposed by the group to serve group ends, not imposed from without and lacking consent of the governed. It is *not* a question of order or lack of order, but of how the order is decided upon and enforced. Any good classroom is an orderly classroom, but this order can and should be developed through the planning and the consent of the governed, even at the primary level. Little children, under intelligent adult leadership, are surprisingly capable of seeing the need for self-discipline and for rules to govern conduct, and can work out their own rules of government for the group.

If one is inclined to believe that the authoritarian concept of education is the best approach to the development of democratic ideals, he should observe how quickly discipline disintegrates in an authoritarian

school when the strong governing hand is removed for any length of time. If he believes that the school of the past has been eminently successful in inculcating democratic ideals and ways of acting, including respect for authority, he should observe the relationship of the youth of slum areas to the police of the neighborhood, or the attitude of adults in general to speed laws and to antidrinking and antigambling laws. Certainly the ability of the electorate to think critically on major issues of the day and its endeavor to vote regularly in all elections leave a great deal to be desired. Nor have we been too successful in eliminating racial and religious prejudices, although respect for the race and the religion of others is one of the ideals of democracy. Surely it is time to apply the concepts of modern psychologists and educators to the more effective achievement of the democratic ways of life in America. This should be done even if the old methods were relatively successful. A good teacher strives continually to find more effective methods of education; otherwise, he soon ceases to be well educated in his profession, regardless of the college degrees he may claim.

2. *The schools must strive to educate each child so that his fullest potential growth is secured along socially desired lines.* It is obvious to a psychologist that the schools, even at best, will fall far short of this goal. The potential for growth of the human organism is so great and so varied that even our best schools leave much to be desired. At the same time, it is the responsibility of the school to try to develop an educational program for the twelve or more years that the pupil is in school that will permit him to grow as rapidly as his capabilities will allow toward his fullest potential growth. In other words, the school must do its best for every child during the full time it has the child in its care.

The above point of view still is not acceptable to all concerned with education, but it is becoming more and more the established policy of the public schools below the college level. There are many persons who hold to an aristocratic or rigidly intellectual view of the function of education. They believe that the school should educate only those of high academic ability once the bare essentials of reading, writing, and arithmetic are achieved. They would have the secondary school exclude all but those of high intellectual ability, for they contend that the primary function of the secondary school is that of preparing pupils for college. They believe that those aspects of secondary education not contributing directly to intellectual development are frills and fads and, if not eliminated entirely, should be held to the barest minimum consistent with the college-preparatory function of the school. They argue that pupils unable to be educated in this sense of the term "education" should be trained to do the heavy physical work of the world, or be

allowed to enter into business for themselves if they have the knack of making money, but should not "clutter up" the high schools.

Fortunately for the welfare of American democracy, this aristocratic view of the function of education is not acceptable to the voting majority. Teachers are and must be concerned with the fullest development of every child in school, barring from attendance only those who deviate from the normal to such a degree that they cannot profit by attendance at the school. This does not in any sense mean a lowering of standards of attainment for those who are capable of a high level of abstract thinking. Certainly the school which fails to achieve the fullest possible development of intellectual ability is doing democracy a great disservice. What it does mean is that we must learn better how to educate all to the full extent of their potentialities rather than only the academically capable.

3. *The curriculum of the school must grow out of the needs of the individual and the needs of society.* This concept has often been misunderstood, not only by those who are opposed to it but by many who accept it. Many who believe in individual and social needs as a basis of the curriculum do not adequately understand these needs. Many do not see the full significance of this concept as it affects the teaching and the learning processes. Many have concluded that according to the needs concept children should do from day to day whatever they happen to be interested in at the time, that teaching by the needs concept means finding out what the children want to do today and allowing them to do it. Such conclusions, of course, show a complete lack of understanding of the needs approach to the curriculum.

What, then, does the needs concept imply? To begin with, the human organism is so constituted that there are certain physical and psychological needs which must be satisfied if the individual is to develop into a person of good physical and mental health. The individual must have nutritious food, adequate medical and dental care, and healthful physical exercise. He must be able to satisfy his needs for spiritual and aesthetic expression and to feel sure and wanted in his social environment, both at home and in the school. He must have prestige with his peers and feel that he is successful in many of his undertakings. He must be able to face his problems of living squarely, recognizing both his strengths and his weaknesses. He must be free from unreasonable fears and unnecessary emotional upsets. He must be able to fit his behavior to the needs of the group and must be able to work and play successfully with those with whom he must live.

In like manner, a society has its needs. A democratic society must have citizens who understand and believe in the ideals of democracy, and

are determined to make democracy succeed. It must have citizens who are capable of studying the many and often highly complicated problems of modern living and of arriving at reasonably satisfactory solutions to these problems. It must have a certain commonness of thinking and acting on the part of its members if it is to continue to exist as a well-integrated social group. It is a well-known truth that a society cannot exist "half slave and half free." It is equally true that a society cannot exist half democratic and half fascist or communist. While the members of the society can differ on many things, there also must be strong bonds to hold them together so that they can resolve major differences without resort to force and bloodshed.

An increasing number of educators and laymen are becoming convinced that a highly academic and subject-centered education is not the most effective way of contributing to the development of the individual and of society, but, rather, that the curriculum of the school must grow more directly out of the big problems of living. One does not learn to be an intelligent and participating citizen merely by studying about citizenship and about famous American citizens, but, rather, by continually behaving like a good citizen. One learns by continually facing the big problems of citizenship. This does not mean in any sense that there is no place in the school for the subject matter of history, geography, and arithmetic. It is obvious that one cannot understand the institutions of democracy without knowing how these institutions came about, nor can one take care of the everyday tasks of earning a living and maintaining a checking account without a knowledge of mathematics. A rather intimate knowledge of Korea, Japan, Russia, and the other major regions of the world and their peoples is an essential requirement of even reasonably intelligent citizenship today. Certainly, the modern school needs more, and not less, subject matter than the conventional school. The way in which this subject matter is utilized in the modern school, however, differs greatly, for the mastery of subject matter becomes the means through which individual and social needs are satisfied, rather than a goal in itself.

The modern school accepts responsibility for contributing to all aspects of human growth and development, not to the intellectual alone. This does not mean that the school is usurping the rights and functions of the home and the church. Rather, it means that the school is recognizing that the best job of educating children can be done only as all interested institutions work and plan together in such education. It is a further recognition of the psychological fact that the child cannot be divided into the "home child" for certain learnings, the "church child" for certain other learnings, and the "school child" for the development

of certain other capabilities. The child who is emotionally stable at home, for instance, will carry over this behavior tendency in school. On the other hand, if he suffers continual emotional upset either at home or in school, his behavior in both places will be affected. It is highly doubtful if one can relegate the development of one trait—honesty, for instance—to the home or to the church and withhold responsibility for this trait from other institutions. A child who is fundamentally dishonest in his attitude toward life carries this attitude into all his living. He cannot possibly become a “home child” for the teaching of honesty, with the school refusing to accept any responsibility for the development of this quality. By such a refusal, the school may actually undo the work of the home. Furthermore, many homes do not contribute greatly to a fundamental attitude of honesty in their children, either because of a lack of this attitude in the parents or because of the failure of the parents to accept responsibility for the total behavior patterns of their children. Certainly society cannot allow children from such homes to grow up without making a serious attempt to develop in them a desire to be honest in their relations with others. Again, it should be emphasized that in the many situations in which the home and church are doing excellent jobs, there is need for the school to be equally concerned if the best results are to be achieved.

The philosophy of individual and group needs as a basis of the classroom curriculum will be discussed more fully in later chapters. The above is presented as an introduction to a philosophy of teaching that is fundamental to the modern school and teacher.

4. *The aims of education are lines of growth, not subject matter to be mastered.* The aims of education are the developing of behavior patterns. This point of view is well illustrated by the two teachers described in Chapter 1. Miss Wheeler is concerned chiefly with the extent to which the child is learning his arithmetic, his reading, his social studies, and his art. Her aims center in the subject matter to be learned. She is interested in the total personality growth of the child only as a secondary matter. Mrs. Jordan, on the other hand, is greatly concerned with the degree to which the child is learning to govern himself, the extent to which he is developing those scientific and socioeconomic concepts essential to effective citizenship in our democratic society.

It should not be forgotten that many of the aims of the conventional school and the modern school are the same. Both believe that a high degree of skill in communication, including reading, is an essential of modern living, and both are concerned with education for citizenship. The two schools state these aims in different fashion, however. The aims of the modern school are conceived in terms of the desired lines

of pupil growth, in terms of the developing of behavior patterns; the aims of the conventional school are seen in terms of the subject matter to be learned.

The nature of the aims of education and their application to classroom teaching will be discussed more fully in later chapters.

5. *The modern school is a community-centered school.* Teachers today understand as never before that the school is only one of the agencies of the community responsible for the education of youth, and not necessarily the most important one. They also are realizing that youth will be better served if these institutions work and plan together in the educational process rather than operating independently within defined limits. The child is what he is at any given time because of his total environment, which includes the school, the home, the church, and other agencies of the community. It is only as all interested agencies concern themselves with the total development of the child and work co-operatively toward the same ends that optimal learning situations can develop. The teacher, the parent, the scoutmaster, the religious leader, and others charged with guiding the development of children will achieve better results when working as a team than when operating independently.

The modern school is community-centered for another reason: the community is a rich laboratory for learning. Factories, fields, governmental institutions and organizations, farms, and the people of the community are storehouses of information which may be utilized by the teacher and class in search of answers to the problems of living. Books are no less important in the modern classroom than in the conventional classroom, but they become only one source of information among many which children use in the solution of their problems. The whole community is the laboratory; the classroom is the center out of which the children operate.

6. *Learning is a process of experiencing.* Teachers are realizing more and more that there is no substitute for experience in the learning process. It is obvious that a child can learn to read only by experience in reading; it is not always so obvious that a child can learn to be a good citizen of a democracy only as he has real experiences in democratic living, or that he matures emotionally by experiencing emotional situations in which satisfactions are gained by emotionally mature behavior. The child develops creativeness in writing and in painting by being stimulated to express his ideas and his feelings in prose and poetry and with oils and water colors; creativeness does not result from mere drill on the techniques of writing and painting, or from imitation of the works of the masters.

Direct experiences make vicarious experiences meaningful. The child who has never seen a cow milked and who has never experienced the thrill of actually making butter from cream can never quite gain the understanding of dairying and its importance to life that is possible for a child who has had direct experiences with cows and dairies; nor can the child who has never seen a large ship on an ocean quite gain the same meaning from stories of the sea that is possible for a child of considerable experience with ships and boats. Stories of the Indians or of the people of Mexico take on meaning for a child who has lived with Indians and Mexicans that is denied the child who has never lived or traveled outside of New York and its immediate environs.

When direct experience is not possible, there are ways and means of adding reality to learning situations. Certainly the radio and the motion picture come very close to bringing the real thing into the classroom, and the advent of television opens up a whole new world of possibilities for bringing the outside world to the teacher and class. Television makes political conventions and the inauguration of a new president realistic experiences. Television, motion pictures, radio, and other audio-visual aids to education make the more abstract treatments in books understandable. On the other hand, the thoughtful discussions of the authors of books, which are missing in the direct experiences, become meaningful and, in turn, make future direct experiences of greater value.

The experience concept of learning has often been badly misunderstood. Many have erroneously thought it to mean that experiences must be overt experiences. Certainly a child who is reading a book, and who is gaining meaning or enjoyment from the book, is having an experience, the experience of learning or of securing enjoyment through reading. The child who is thrilled with a beautiful painting or is listening to the reading of a poem with enjoyment is having a worth-while learning experience, even though he utters not a single word. Experiences are emotional, intellectual, physical; they may be direct or vicarious, but they still are learning experiences if they affect the child's manner of behaving.

The conventional school is not to be condemned because it lacks in experiences for the child, but, rather, because these experiences are entirely too narrow in scope, because they tend to be over-academic for the child, and because too many of the experiences lead to undesirable learnings, particularly undesirable attitudes of many children toward the work of the school.

7. *Children differ from each other in their learning potential in any given field of learning.* This is a psychological fact that has been well recognized for decades, and to which the school has been giving lip

service for years, while generally violating it in practice. For instance, if one were to study carefully each of thirty beginning first-grade children in an effort to determine his stage of development—his development intellectually, physically, emotionally, and socially—one would find that each child differed from every other child to either a small or great degree. Some of the children would be barely six years of age, assuming that no child could enter the first grade prior to his sixth birthday, while a few of the children would be seven or nearly seven years old. If one were to give an intelligence test to each child, he would find two or more years of difference in mental age, at least as measured by the test, between the most intellectually mature and the least mature children. One would find differences in the physical maturation and in the social and emotional development of the children.

A study of reading readiness, combined with actual reading instruction, would soon make it clear that some of the children were capable of learning to read from charts and books and could progress very rapidly in the development of reading abilities. On the other hand, several of the children would not be mature enough to learn to read, even with very patient instruction. The same great differences would be detected in the capabilities of the children in situations requiring neuromuscular co-ordination or quantitative thinking. The children would differ as greatly in their abilities to work co-operatively with others and to assume leadership of groups.

The modern teacher strives to adjust his teaching to the learning potential of the child, whether he is in the first or the sixth grade. For instance, Mrs. Jordan developed classroom learning situations in which each child worked at his own learning levels in arithmetic and reading, and in the tasks co-operatively set in the social studies and related learning areas. Miss Wheeler, however, gave little recognition to the fact that her children differed from each other in their learning potentials and assigned essentially the same reading, arithmetic, spelling, and social studies to all. She realized that there were differences in the abilities of her children, but did very little about it. In fact, she treated them as though all were essentially of the same potential, even though she knew this to be unrealistic. The conventional school is set up on the assumption that all can and should do the same work in each grade; there are the same textbooks for all to study, the same assignments for all to complete, and the same standards of achievement for all to attain before being passed to the next grade.

The modern school and the modern teacher recognize great differences of potential in each of the learning areas of the curriculum and plan for differentiated progress rather than lock-step progress. The work

is so arranged that children of high reading potential, for instance, progress at a rapid rate, while those of lesser ability move along more slowly, yet surely, in the development of this most important ability. Differentiated rates of progress are encouraged in mathematical learnings, in music and the arts and crafts, and in the development of social concepts and physical skills. Ways and means by which this can be done will be considered in some detail in later chapters. What is important here is that the teacher realize that the curriculum must be adjusted to the nature and the needs of each child if effective learning situations are to be developed for all members of a class and school. If the curriculum is not so adjusted, neither the highly capable nor the less capable can progress with satisfactory speed. The less capable will become discouraged because of being forced into impossible learning situations. The highly capable will become bored because of the lack of real challenge in the classroom.

8. *Each child differs within himself in learning potential in the several areas of the school curriculum.* Each child is unique unto himself. George may have a potential for gaining insight into mechanical situations far in excess of his comparative potential for music or for linguistic accomplishments. Geraldine may have a degree of neuromuscular co-ordination, combined with a fine physique and a sense of timing, which will make possible the performance of physical skills not possible by many in the class; yet, she may be of just average ability in mathematical reasoning or spelling. Janet may have the ability to learn very rapidly in the language arts, including reading, and be excellent in mechanical and mathematical thinking; yet, she may be physically immature and have great difficulty with writing or rhythmic activities. James may be physically very mature, yet socially immature for his age. And so one could go on through all the members of the class. The teacher who realizes that it is the natural thing for a child to differ within himself in his social, intellectual, emotional, and physical maturation, and in his potentials for learning in the several curricular areas, will avoid many of the pitfalls of conventional education, which strives for a general level of achievement in the child rather than for differentiated achievement.

9. *Learning is a creative process.* For decades there has been controversy over the nature of creativeness and the question of whether creativeness is something possessed by all in greater or lesser degree or something possessed only by the very few. One can go back to the twenties and find textbooks on education in which the authors argue that only a very, very small percentage of the population possess creative ability and that, consequently, the teacher has almost no chance of having

a truly creative pupil in his class and certainly need not concern himself with the development of creative ability. The school, goes the argument, must be concerned with developing appreciation of the works of the masters, not with trying to develop creativeness itself. Creativeness is defined in these textbooks as the ability to express oneself through writing, the arts and crafts, music, or other media of expression in such a manner that the composition will live throughout the ages as the work of a master. It must stand the test of time and of competent criticism to be considered creative. It has to possess originality, not for the individual, but for the race.

The foregoing concept of creativeness is no longer tenable in education. Psychologists now know that creativeness is something possessed by all, by some to a very small degree, by others to a very great degree. Creativeness is the process of improving upon one's self-expression. It is expression which for the individual is original, regardless of how often others have so expressed themselves. Under this concept all children are endowed with creative ability to some degree, and this potential is capable of development through learning experiences favorable to creative expression. All teachers must accept the development of creative expression as a desirable aim of education and strive to guide children into learning situations which will stimulate creative thinking and doing. This concept is discussed in more detail in later chapters.

10. *The learner is a goal-seeking organism.* It now is generally recognized that learning is most effective when the learner is proceeding toward goals which he has accepted as desirable goals for himself. A person, whether child or adult, who sees something as worth doing because of the satisfaction to himself will work with more effectiveness and will become discouraged less easily than will one who is working on assigned tasks for which the reward, if any, is extraneous to the learning itself. In school, learning is more apt to persist after the completion of a course if the pupil is studying because he is interested in the thing to be learned rather than because he wants to escape the punishment of low grades and teacher and parent censure or to secure the rewards of high grades, and school and parent commendations.

As shown in Chapter 1, Mrs. Jordan gives her children every opportunity to participate in the planning of work to be done and tries to keep them working at tasks in which they can be successful. This is done in order that the children will accept the work as worth-while goals to be achieved rather than as assignments to be completed. Work which the children have a part in planning, and which grows out of real problems of living, is much more apt to be accepted by them as a desirable goal than are teacher-assigned tasks. Too often in the latter

case the grades and credits, rather than the learning itself, become the goals.

A fallacy all too common in some circles is that interesting learning is soft education. Unfortunately, some teachers and parents have failed to differentiate between interest and entertainment and have concluded that to be interesting learning has to be entertaining. Rather, interesting learning is learning that makes sense to the pupil, is learning in which he sees value, is learning in which he has purpose. Interesting tasks often are difficult tasks and may require great perseverance. The child who really wants to learn to play the piano, the boy who is determined to become a member of the track team, and the pupil who wants to master a foreign language have purpose in the learning. They are interested in the work to be done, but it is not sugar-coated learning.

11. *In problem-solving situations desired learning takes place only if the child is capable of gaining insight into the learning situation.* It does no good, and may do great harm, to force children into problem-solving situations in which they are not able to gain insight. For instance, to assign a lesson out of a book that is above the child's reading level creates a situation in which the desired learning is not possible. The child is not able to get the desired meanings from the symbols on the printed page. Jerry, for instance, is twelve years of age and in the fifth grade. His measured reading ability is that of an average child 8.4 years of age. The teacher has assigned Jerry the same arithmetic-reasoning problems assigned to all the members of the fifth grade, problems which require a higher level of reading ability than Jerry has. It is impossible for the boy to complete his assignment in arithmetic without a great deal of help, for he cannot read the problems with understanding and, consequently, cannot solve them. To force Jerry into such a situation is poor teaching. Jerry must work with books suited to his reading ability if he is to learn from these books and if he is to improve in reading. To force him into problem-solving situations in which he cannot gain insight creates in him confusion and discouragement and may cause him to dislike both arithmetic and reading.

Again, the reading of the Federal Constitution by eighth-grade children who have had little direct experience with city and state government will result in very little real learning, for the children lack the experiential background necessary to make the terminology of the United States Constitution meaningful. It is true that these children may be able to recite the provisions of the Constitution, but tests will indicate very little understanding of it. On the other hand, children who have spent several months in direct experiences with city and state government in action—visiting the city council and the state legislature

in session, talking with members of the legislative, judicial, and executive departments in their own community, and following bills through the legislature—are capable of gaining a surprisingly high degree of understanding from the reading of the Constitution. They are able to gain insight into the operations and functions of the Federal Government, even though they cannot visit Washington to see it in action.

The above illustration is given to show the importance of the teaching procedure in the development of insight. Often direct experience or the judicious use of audio-visual aids combined with dramatization gives insight into a complex learning situation not possible from book study and discussion alone.

12. *The child reacts as an integrated whole to whole situations.* This principle has many implications for classroom teaching. Teachers are becoming more and more concerned with the state of mind of a given child at a particular time. They are realizing that they must give as much attention to the attitudes, study habits, appreciations, and other behavior patterns of the children as to the specific information or skills to be mastered. The child at any given time is reacting to the total stimulating pattern, including his own state of being. Let us consider Miss Brewster's seventh-grade class at the beginning of the afternoon session. It is the social science period, and Miss Brewster is conducting a discussion on the reading assignment covering the beginning of the Civil War. The boys have just come in from a game of touch football, and George is still smarting from what he feels is an undeserved reprimand by the boys' physical education teacher. After all, he didn't knock the sixth graders around with malicious intent. They shouldn't play football with the seventh graders if they can't take it. He is still playing football and trying to rationalize his actions on the playground. He is not at all concerned with the attack upon Fort Sumter and the beginning of the Civil War. His state of belligerency is not at all decreased when he is reprimanded by Miss Brewster for not paying attention to the discussion of the class. Milton likes history and has come in early in order to do some additional reading. He pays strict attention to the contributions of others of the class and makes some well-informed observations himself. Howard generally likes history, but he sprained his ankle during the noon football game, and he is having a hard time keeping his thoughts off his pain. The new boy in class asked Julia to go with him to the teen-age dance tomorrow night at the Y.W.C.A., and Julia is all excited. She is wondering how she can get the consent of her parents, who are rather strict about her dates. Consequently, the inauguration of Lincoln and the secession of the Southern states is of secondary importance to her. The fact that Melvin thinks the teacher bears a grudge

against him and is unfair to him in her grading keeps him from trying his best. He is developing a definite dislike for school and the teacher. Mildred, on the other hand, is unusually fond of Miss Brewster, is on her toes to follow her suggestions, and is being most attentive to the class discussion.

If one could examine the motivational pattern of each of the thirty-two seventh-grade pupils at this particular time, the results would be rather startling. True, all are responding to a degree to the teacher and the other members of the class. This behavior, however, is modified by the inner feelings of each pupil so that no two are reacting in exactly the same manner to what may seem to the uninformed to be a common stimulating pattern.

Total situations usually give meaning to their parts. Consequently, there is less and less of the block-building type of education today; instead, good teachers proceed from the larger pattern to its parts. The typical illustration, and one on which there has been a great deal of experimental study by psychologists, is that of learning a poem or a play. A child who first reads the whole selection, or has had it read to him, and who understands the whole, will then be able to memorize it more rapidly than if he began a piecemeal memorization. A child learns to swim best by practicing a total co-ordinated pattern rather than by first learning to use his hands and arms, then his feet and legs, and then his body proper. His first trials are of the total pattern. As he develops the ability to stay afloat and experiment, he then works on the parts, practicing breathing, kicking, and stroking separately, and then in unison. Concepts are best taught as integral parts of larger wholes rather than as verbalizations to be memorized. For instance, the children of Mrs. Wright's first grade have had experience in choosing sides for games. Sometimes there are two teams; often there are three or even four teams. Under skillful teaching, the children ultimately are able to see that this process of choosing teams is a mathematical problem, and that actually they are dividing the group by two or three or four. From this total situation may develop a concept of division as a process of continuous subtraction, and soon the children will have formulated this generalization. An attempt to teach division as an abstract process at the primary level would have failed rather miserably. Taught in context as part of a total experiential situation, however, abstract ideas can be grasped by even little children.

13. *Successful achievement is an essential to good mental health.* "Nothing succeeds like success" is an old saying, the significance of which we have not always understood in teaching. One also could say that "nothing is so discouraging as continual failure." Psychologists and

psychiatrists are well aware of the devastating effects of continual failure upon an individual, yet many schools continue to force children into situations in which failure is all but inevitable for many. For instance, it is a well-known fact that at the intermediate and upper grade level in almost any school the actual reading capabilities of the highest fourth and the lowest fourth of the children of a given grade will differ by as much as one and one-half to two years. These same differences can be detected in mathematical achievement, in physical abilities, and in any of the other areas of the elementary school curriculum. It should be obvious that if all children of a sixth grade are expected to solve the same arithmetic problems and if the reading level of the book is well suited to the average sixth-grade child, then a fairly large number of children, possibly one-fourth of the class, will be unable to read the book with understanding. Many, but not all, of the slow readers will also be of rather low potential in the field of arithmetic. These could not solve the problems even though they received help with the reading. Following the illustration further, if these children of combined low arithmetic and reading potential and achievement are then given low and failing grades and are reprimanded by parents for these grades, they are almost certain to develop undesirable behavior toward arithmetic, the school, and the teacher. Some will rationalize their failure by blaming the teacher or the fact that they have to deliver papers in the morning. Others will recognize that they are unable to gain the respect of their peers through their performance in arithmetic and will turn their major energies to areas in which they can succeed, avoiding reading and arithmetic whenever possible. For some, it will be athletics; for others, music or mechanical work. Still others will become troublemakers in order to gain the approval of classmates and may take real pleasure in "teacher-baiting." Some children will escape reality by becoming daydreamers. By so doing they can shut out the outside world and can become heroes of their own making. Most of them will learn to dislike arithmetic, and many will include the teacher and the school in this dislike.

The old argument that this is a competitive world, and that children must learn to become successful competitors, is not adequate justification for the psychological damage wrought within those who have little or no chance of success. Competition among equals may be desirable, but competition between the superior child and the slow-learning child is good for neither. Continuous failure drives the slow learner into undesirable ways of behaving; easy success leads to poor study habits on the part of the capable child and often to erroneous evaluation of his own capabilities.

True, a child must learn to accept failure; but he should react to

failure by a rearrangement of his goals, or by a determination to succeed in spite of difficulties and failures. He will react in this manner, however, only if he can see possibilities of success, or can readjust his goals in a satisfactory manner. If he sees nothing but continuous failure ahead, he soon develops a failure complex; he either rationalizes his failures, develops an avoidance technique to keep from getting hurt unnecessarily, or compensates for his failures by putting undue time and effort on those things which will bring successful achievement.

14. *Security and prestige are necessary for the development of good mental health.* Self-esteem and social prestige are of high importance in the development of a mentally healthy individual. A child or an adult who feels that he is respected by his peers has an outlook on life far different from one who feels that he is not respected by his fellows. It becomes apparent that prestige and success are closely related factors. Prestige with one's peers often comes from respect for the quality of one's work or efforts. Security is equally intertwined with success and prestige. A child gains acceptance by the group partly through the quality of his achievements in various learning activities. He gains considerable prestige in the group in the same manner. There are, of course, many other factors which contribute to the feeling of belongingness (security) that the child carries into the classroom: the teacher's friendliness or lack of friendliness, the extent to which children include him or exclude him from their little cliques, the suitability of his clothes or manners—all these greatly affect the child's attitude in school. Inability to read as well as the others in class, inability to do the arithmetic of the grade, inability to play games well enough to be wanted on teams—all these and many other factors may create feelings of inferiority and of not being wanted which modify a child's whole attitude toward the school. Illustrations are legion of children who have overcome reading and arithmetic difficulties through proper remedial procedures and sympathetic treatment by teacher and class and who have thereby lost their fear or their dislike of the school. Slow-learning children under a highly competitive system generally develop undesirable attitudes and ways of behaving, but with sympathetic guidance and a curriculum adjusted to their abilities and needs they like school and profit greatly from it.

Children who feel unwanted in the home often carry this feeling of insecurity into the school and require an understanding teacher if they are to develop into well-adjusted individuals. Children who feel that they are not respected in the home often develop a belligerent or a defeatist attitude which carries over into the school. In the same manner, similar attitudes developed in the school situation greatly affect the child's home behavior.

15. *The development of generalizations through broad experiences favors transfer of learning.* There is still considerable difference of opinion as to the precise manner in which so-called "transfer of training" takes place, but a great deal is known about the conditions under which there is transfer of learning from one situation to comparable situations. It is known that a person who has developed a high degree of understanding of a scientific principle or an economic concept through experience is much more apt to see its application in partially novel situations than is the person who has learned by definition and who has made only limited application. For instance, Mary Anne has spent five years in a school in which mathematical concepts are developed on a broad experiential basis and has been working with fractions, both decimal and common, from the kindergarten on, and at an increasing level of complexity. She has many times helped divide the class by 2, 3, or 4 in order to get $\frac{1}{2}$ or $\frac{1}{3}$ or $\frac{1}{4}$ of the members of the class on a team. She has learned to read the mileage meter on the speedometer of her father's car and knows that .2 and $\frac{2}{10}$ are the same. She also has developed a space concept so that she knows about how far .2 of a mile is. She has had experiences with money and knows that a dime, \$.10 and $\frac{1}{10}$ of a dollar are of the same value, that the same value is contained in ten pennies, two five-cent pieces, or one five-cent piece and five pennies. More than this, Mary Anne has had broad experiences in the use of money so that she knows something about the purchasing power of the quarter and knows that it can be expressed in writing as either \$.25 or $\frac{1}{4}$ of a dollar or 25¢. She is capable of a fairly high degree of generalization in her dealing with fractions and is not confused by seeing them written differently because the symbols have an experiential base. Her learning is conceptual rather than verbal; consequently, her ability to apply mathematical thinking in various learning situations involving fractions is enhanced.

What is true of Mary Anne's concepts of fractions is also true of her concepts of money values. She not only has learned the comparative purchasing values of dimes, quarters, and dollars, but has learned that purchasing power (money value) fluctuates. During certain seasons of the year fifty cents will buy more butter, eggs, or apples than at other times. She learned this partially through a third-grade unit, "The Market," in which the children ran their own market for a period of months and changed their own prices as prices in the nearby store changed. She has assisted in keeping books for the school lunchroom and has considered costs of various food materials over several months of time. This developing concept of the economic principle of supply and demand will transfer to other situations besides those related to

food costs as Mary Anne matures and as her experiences are broadened.

Through continued and varied experiences with changing money values and other economic concepts throughout junior and senior high school, Mary Anne has a very good chance of graduating from high school with an economic intelligence superior to that of many, or most, adults of the community. She stands a much better chance of making the transfer from the problems of the environment of the school and the immediate community to problems of national and international scope than does a person of comparable potential who has learned his economic principles chiefly from a textbook in the senior social-problems class.

16. *Drill is an essential element in developing many abilities, but it must be purposeful to be most effective.* It should be obvious to the reader that the principles of interest and of insight are applicable to drill situations. Furthermore, there is no reason to argue the question of whether or not drill is essential, for efficiency of response in many learning situations can be developed only through drill. At the same time, it is important to understand the conditions under which drill is necessary, and when and how it can be most effective. Drill on number combinations prior to the development of number concepts and such concepts as those of addition and subtraction lack purpose to the child and, consequently, must be externally motivated. However, once a child has learned to solve problems of addition and subtraction by experience with actual things so that he has some degree of insight into these concepts, he can see the need for practice in order to develop a greater efficiency of response. A child who has developed number concepts of 6, 8, and 14, for instance, and who understands the process of addition, knows that $6 + 8$ and $8 + 6$ are of the same value and does not have to memorize them as two separate sums.

A child who wants to learn to write has a need for learning to spell and, consequently, will see purpose in spelling practice. A boy who wants to become a baseball player, and who has played the game, understands the need for batting, pitching, and catching practice. He will work harder and with greater effectiveness than a boy who has been forced into such practice in a physical-education class, but who either has no interest in learning to play baseball or has not had enough experience with it to realize the necessity of practice on the parts of the whole.

PROBLEMS FOR STUDY AND DISCUSSION

1. Educators are in agreement that the school should contribute materially to the development of democratic ways of thinking and behaving. Some,

however, believe that this can be done largely by precept; others believe that it can be achieved only by making the school a democracy in action. What is your own thinking on this? How is this problem related to the subject-centered versus the experience-centered controversy in education?

2. Many educators and laymen still argue that the chief function of the school is to teach certain basic skills—for instance, the three R's—and to acquaint the pupil with the culture of the past and the present. Others argue that the school must be concerned with the total development of the child and that the curriculum of the school must be based upon the needs of children and of the society in which they live. Defend your own belief in this regard.
3. Specifically, what is meant by the statement that "the curriculum of school must develop out of individual and social needs?" What some of the chief needs of the individual and of the social group are of major concern to the school?
4. Educators today are thinking of the aims of education as developing behavior patterns or as "lines of growth." How does this concept of aims differ from the subject-centered aims of the school of yesterday?
5. What is meant by the phrase "community school"? What is the basic philosophy of the community school?
6. Miss Black and Miss Wilson teach social science in a large city high school. Miss Black is essentially subject-minded in her approach to teaching her classes; Miss Wilson is experience-minded in her teaching. What would you expect to be some of their major differences of procedure in teaching? Use a twelfth-grade social-problems class for purposes of illustration.
7. Assume that you are the teacher of the fifth grade in a small town in your own state. The town is quite typical of the region. The class has an enrollment of thirty-one pupils. Specifically, what are some of the major differences of potential which you would expect to find in the children of the class? What are some of the social, emotional, and physical differences which will affect teaching and learning in the class? Illustrate some ways in which the curriculum can be adjusted to these differences.
8. Mr. Young teaches the seventh grade of an eight-room elementary school. He has administered a battery achievement test and has discovered that George is quite low in his arithmetic score, high in his history and reading, and low in spelling. Several of the other children show great differences in achievement in various subjects. Mr. Young is quite worried, and he comes to you for advice on what to do. What do you advise?
9. You are visiting an elementary school. You note the following in the third-

grade room: Everything is neat and orderly. The pinning strip above the blackboard is filled with children's paintings, each depicting Santa Claus beginning his climb down a chimney, pack on back. The paintings are made over duplicated outlines on the paper. During your short visit the children are engaged in making Christmas cards for mother. Each card will have a picture of a lighted candle on it, with the inscription "Merry Christmas, Mother." In the fifth grade you note the children working on a large mural painting, "Christmas in Mexico," which is being developed as part of the activities of the unit "Living in Mexico." Numerous articles of Mexican crafts are on exhibit in the room. The children are dramatizing "Christmas in Mexico," making up words and actions as the dramatization develops. What do these brief observations indicate regarding the philosophy of creativeness of each of the teachers observed?

10. What is your concept of "purposeful learning" in education? What is your own educational philosophy in regard to internal (intrinsic) versus external (extrinsic) motivation in the elementary school?
11. Explain the following statement: Effective learning is possible only as the learning situation is within the child's level of insight. How may the difficulty level of a learning situation be affected by the teaching procedure used? Illustrate.
12. What is meant by "wholeness" in learning versus "learning by parts"? Illustrate these principles by showing how they might be used in the teaching of a mathematical concept or process.
3. Do you agree or disagree with the statement that "successful achievement contributes to good mental health; continuous failure results in poor mental health"? What is the relationship between successful achievement and the child's feeling of security in the school situation? Illustrate.
4. Discuss the following classroom practices from the standpoint of a modern philosophy of education:
 - (a) Standardized assignments, with grades (marks) determined by competitive scoring.
 - (b) Teacher-maintained discipline, with strict enforcement of rules of behavior.
 - (c) Set punishments for specific offenses, with all pupils receiving the same punishment for the same offense.
 - (d) An organization within the intermediate grades allowing for a certain amount of pupil self-government.
 - (e) The use of a prepared workbook for the study of science.
 - (f) Drilling on processes in arithmetic only after the related concepts are fairly well understood.

(g) Creating words and music for songs in the fourth grade.

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3 · The Experience Unit

CONCEPT OF AN EXPERIENCE UNIT

During the past three decades there has been a greatly increased tendency to organize a large portion of the learning activities of the school day around a major problem or "center of interest." An understanding of the concepts underlying this approach to the classroom curriculum and a knowledge of how to plan and guide unit activities are of vital importance to the modern elementary schoolteacher. For this reason a large part of this book is devoted to the experience unit.¹

The best way for a person who is inexperienced in unit teaching to learn what an experience unit actually is is to spend several weeks in a classroom in which a unit is being developed and to assist the teacher and pupils in its development. As a second best way, he may read descriptions of the development of units in the classroom. Hence detailed descriptions of two experience units are given in this chapter and the next. These descriptions were written by the teachers themselves, who kept daily records of the class activities as the units developed.²

The unit "The Home" was developed in the first grade by a teacher relatively inexperienced in this approach to teaching. She was, however, a superior person with a number of years of successful teaching to her credit. The unit "Weather" was developed in a school situation in which this type of teaching was quite common, although the teacher herself was less experienced in unit teaching than one might expect, considering the excellence of the teaching done. These two units were developed a number of years ago, but, in spite of their age, are still excellent illustrations of the experience concept of teaching.

¹ *Experience unit, unit of work, and activity unit* are different terms for the same concept and will be used interchangeably.

² The reader will recall that a cross-section description of an experience unit was presented in Chapter 1—a description of the classroom activities of Mrs. Jordan and her sixth grade.

LOG OF AN EXPERIENCE UNIT ON THE HOME IN
THE PRIMARY GRADES

The following unit of work was developed in the Palm School of Riverside, California, under the leadership of the first-grade teacher, Mrs. Maude Mueller. Carried out in a practical public school situation by a teacher relatively inexperienced in this approach to education, it is an illustration of the type of instruction possible in any school where there is sympathetic encouragement by the administration and intelligent understanding of the principles of child learning on the part of the teacher.

Three units of work were carried out during the year by this first grade. As each unit led naturally into the next, a brief description of the units on "Pets" and "The Farm," which preceded the unit on "The Home," is given prior to the detailed description of the home unit. Thus this account not only gives a word picture of a real experience unit, but it demonstrates how one unit may lead directly into other units and gives an overview of an actual year of work.

A Home Unit

First Grade, Palm School
Riverside, California
Mrs. Maude Mueller, Teacher

EXPLANATORY INTRODUCTION

At the beginning of the year this first-grade class became interested in pets. This activity led to a study of farm animals and ultimately to a farm unit lasting about three months. The unit on "The Home" developed out of an interest on the part of the class, stimulated by the teacher, in finding out about the farmer's home. This developed quite naturally into a real home unit in which the farmer's home, as such, disappeared and the children's own home life dominated the activity. The home unit continued to the end of the year, a time of about five months, with no lessening of child interest.

Because of the way in which one unit naturally led into another, brief descriptions of the pet and farm activities are presented, leading to a more complete description of the unit on the home.

BRIEF LOG OF THE UNIT ON "PETS"

When the children came to school in the fall they found numerous pictures of pets around on the walls and books about pets on the reading table. We read stories of pets, and the children told of their pets at home.

A *Pet Show*. Next morning Joan brought her pet cat to school. The children enjoyed the little visitor very much. Discussion about pets grew and out of this came the planning of a Pet Show, ". . . so that we may all bring our pets to school to show to the children."

The following children's record made of the Pet Show was written on the board by the teacher:

We have a Pet Show.
We have three rabbits.
We have two turtles.
We have a canary bird.
We have a dog.
We have two pigeons.
We have a cat in our show.
This is Sonny Boy.
Robert and Jimmie brought him for our Pet Show.
This is Joan's cat.
She drank milk.
She said, "Meow, meow."
This is Fluffy.
Wilbur feeds him.
He gives him water, too.
This is Wayne's dog.
He says, "Bow-wow."
He went to sleep.
These are Billy's rabbits.
They are white.
They have pink eyes.
Their ears are very long.
This is Blackie.
She laid an egg in her nest.
It is warm.
These are Norton's turtles.
They swam in the water.
These are our goldfish.
Some are big.
Some are little.
We have two pigeons.
They are white.
They have pink eyes.
They say, "Coo, coo."

The Pet Show attracted much attention, and a study of pets was begun as a result of it. The children brought in many pictures of pets. Animal books were studied with great interest.

A Visit to a Rabbitry. The class visited a rabbitry and saw rabbits in all stages of development from the ones a few days old, hidden in nests made from the mother rabbit's fur, to the large, mature ones. The man in charge told the children about the food and the care necessary to keep the rabbits healthy.

The following is a record made of the trip to the rabbitry:

We saw a man's rabbits.
Some rabbits were big.
Some rabbits were little.
Some were baby rabbits.
The baby rabbits were in nests.

A Visit to a Farm. A patron of the school, upon learning that we were interested in animals, invited the class to visit her small farm where there were interesting pets to be seen. The farm was within walking distance of the school.

When we arrived we saw several ponies, some rabbits, a little burro, and a big turtle. The children took turns riding on the ponies and had a wonderful time.

The following record resulted from this delightful experience:

We saw a little burro.
It was in a pen.

We saw a turtle.
It was in a fish pond.

We had rides on the ponies.
It was lots of fun.

We rode in the pony cart.
The boys pulled it.

This record was duplicated by the teacher, and a copy given to each child. The children illustrated these and made them into individual books.

Other Activities Connected with the Study of Pets. The children planned and constructed pens for visiting pets. They fed these pets and kept the pens in sanitary condition.

They made a scrapbook of pets. They painted and drew pictures of pets and also modeled them in clay.

They organized charts, using their experiences as content material. These charts were used for first reading lessons. Copies of the charts were typed later and made into reading books which the children illustrated.

They appreciated some poems about pets and learned others. They sang songs about pets.

The children dramatized the story of "The Old Woman and Mrs. Rabbit." They relived the experiences at the farm, galloping like ponies, hopping like rabbits, and crawling like turtles.

A Study of Farm Animals. The interest in pets led to an interest in farm animals. The children had been looking at pictures of farm animals in the books which they found on the reading table. Some of the pictures were very attractive and appealing, especially those of the baby animals.

Jimmie said that if we wanted to visit a big farm to see farm animals his father would take us to one and show us the animals and the rest of the things on the farm. The children were very eager to make this trip. Through discussion it was decided that they wanted to go to the farm to find out:

What animals live on the farm.

What kinds of shelter they have.

What they eat.

What people live there.

Jimmie was instructed to tell his father that we would like very much to have him take us to the farm.

Permission to take the trip was obtained from home.

Safety and efficiency plans for the trip were discussed. Things to remember were:

Keep our voices quiet.

Look for the things we want to see.

Listen when someone is explaining.

Obey the whistle signals.

BRIEF LOG OF THE UNIT ON THE FARM

The Trip to the Farm. True to his promise, Jimmie's father came to school with a bus, and we all left for our visit to the farm. Upon our arrival we were introduced to the farm manager, who proceeded to show us about the farm.

Chickens and Farm Animals. We went to the chicken houses first. There the children saw many chickens. Some were on nests. Some of the nests had

eggs in them. "I never saw so many chickens," said Bobby. "They must lay lots of eggs."

We then went to see the pigs. The children were very interested observers. Some of the pigs were in pens and the rest were in a field. They seemed to become excited by the presence of the children and ran grunting to and fro, much to the children's delight.

The calves were in a pen and were being fed from pails. The children were very interested in watching the noisy disappearance of quantities of milk.

The cows were in the corrals eating hay and chewing their cuds. Jimmie, who had been to this farm before and knew much about the animals, explained what they were doing. The shed where the cows were milked was very interesting to the children. The manager explained the use and operation of the stanchions.

Getting Firsthand Knowledge about the Source of Milk. The cows at this farm were milked by machine, but for the benefit of the class the manager brought in a cow and milked it by hand. To most of the children this was an entirely new experience and they were greatly interested in the process and in hearing the "swish, swish" of the milk as it entered the pail.

We followed the milk into the milk house. The children remarked on the cleanliness of the place. They were served with cups of the warm milk. Exclamations of "My, but that tastes good!" were heard.

Learning about the Silo. The children had been very interested in the silo on the farm. Jimmie's father explained to the children just how the silo is filled for use in winter. "Just like Mother has to can food for winter," said Robert.

The Tool House. In the tool house were all kinds of farming equipment. The children saw farm wagons, trucks, trailers, plows, harrows, spades, and shovels. The boys were especially interested and would have greatly enjoyed a closer acquaintance with some of the fascinating objects they saw.

The Farmer's House. The farmer lived in a white house. The children showed great interest in it, but as it was not part of the itinerary we did not visit it. A discussion settled the fact that farmers' homes are much like our own homes.

The Return Trip. While returning in the bus from our visit to the farm, the children looked for other farms and farming activities along the way. Such exclamations as these were heard:

"I see a silo over there."

"There is a farmer cutting cornstalks for his silo."

"There are some cows eating in the field."

"See the white chickens."

Upon our return to the school we thanked Jimmie's father for taking us on this nice trip to the farm.

Reading Charts. Because the children had enjoyed making and reading books about their pets, they offered the suggestion that we make a Farm Book.

Records were dictated by the children, and the teacher wrote them on the board and later printed them for reading charts. These records were typed and made into Farm Books, which were used as reading materials.

We went to the farm.

We rode in the bus.

Mr. Smith drove it.

It was fun.

We saw a cow.

A man milked her.

We drank the milk.

It was warm.

We saw the chickens.

Some were on nests.

They laid eggs.

There were some pigs.

They were in the field.

They ran and ran.

There was a silo.

The farmer keeps food in it for the cows.

Building a Farm. Following the trip to the farm the children searched for silos in every farm book we had.

Billy said he believed we could make a silo if we had some round boxes. Discussion brought out the fact that silos look like oatmeal boxes. Many round oatmeal boxes were brought in. (Mother was often requested to empty the contents of one into something else to meet the urgent need for a box.) After experimenting it was found that three round oatmeal boxes placed on top of one another made a very satisfactory silo.

It took much thought to get something which could be used for the pipe which the children saw on the silo. Jimmie's father had explained that the ensilage was blown through this into the silo. Finally, however, a small

rubber hose was used for this purpose and the silo was satisfactorily completed.

The silo called for farm animals to be fed with the ensilage from the silo, and soon cows were made from cardboard and placed in standards to hold them up.

The cows required corrals, sheds, a milking house with stanchions, and a milk house in which to care for the milk.

A farmer and his family were needed to take charge of the cows and the milk, so they were soon made and installed. The children had been greatly interested in *The Farmer in the Dell* by Hader, the illustrations of which are very good. They planned the farmer, his family, and a hired man from an illustration in this book.

One day Robert decided that we needed other animals on our farm, so pigs, calves, and horses were added. Later it was decided to have a flock of chickens and some chicken houses.

The farmer and his family needed a house, so that too was added. The silo was used as a standard of measurement for all the buildings.

The farmer needed farm wagons and trucks for his farm work, so these were constructed.

A very adequate and satisfactory farm was now furnishing a setting for much dramatic play in reliving the experiences of farm life.

THE HOME UNIT

Comparing the Farmer's Home with Our Homes. The children were very much interested in life on the farm and began comparing it with life in our own homes.

Discussion brought out the fact that our mothers buy their butter and eggs from the store. The farmer's children gather the eggs. The farmer's wife makes butter from the cream which she skims from the milk. She sells some of the cream to creameries to be made into butter. (The children had made butter in kindergarten and knew just how it was done.) The farmer's wife gets sugar and other things from the store when she comes to town.

Building a House. One day it was suggested that we build a house big enough in which to "really play."

Darrell and Sharon said a new house was being built on Nelson Street right near their homes. The men had just begun working on it. The class took trips to note the progress in building the house whenever Darrell or Sharon reported that some new step in its construction was in progress. Thus we watched the growth of the house from the beginning until it was finished and occupied.

Questions answered by our observations of the house were:

- How the foundation is laid.
- How the frame is erected.
- How the openings are made.
- How the walls are prepared for stucco.
- Why the lath is sprinkled.
- Why air spaces are provided under the house.
- When the plumbing is installed.
- How the roof is put on.

The children looked at many pictures of houses and heard stories about houses. They had made a small house for the toy farmer and his family from small boxes. They drew pictures of houses.

They measured the dimensions of the other first-grade house to help them decide on the size.

They planned for materials and decided how much should be ordered. (Wood of proper length for the framework was requisitioned.) The teacher brought large sheets of cardboard for the walls and a large sheet of wrapping paper for the roof.

The children nailed the frame together after much experimentation.

Billy made a level out of a jar filled with water. He tested all surfaces to see if they were level.

Problems Solved in Discussion Periods. Many problems needed solving during the planning and construction of the playhouse. Some of these were:

- How many windows shall there be?
- Where shall the windows be placed?
- How can they be made the right size?
- How many doors shall there be?
- Where shall the doors be placed?
- How can the roof be held up?
- What color shall the roof be painted?
- What color shall the inside walls be painted?

Discussion about Why We Paint Houses. Painting the playhouse was a fascinating venture. Much discussion brought out the reasons for painting. Some of the reasons were:

BILLY. Because it looks pretty.

CHARLES. Because people wouldn't live in it if it wasn't pretty.

JIMMIE. To keep the nails from rusting.

DARRELL. To keep the wood from getting splintery.

It was finally agreed that houses are painted to preserve the wood and to make them look attractive.

Green was chosen for the outside walls because it matched other green things in the classroom. (The library corner has green furniture.) The roof was painted red because red roofs look pretty and besides the children had read a story about a house that had a little red roof. The inside walls were made yellow because it looked bright like sunshine.

The children all wanted to help with the work, so they took turns with the painting.

Conferences. Discussion periods were held at the close of each work period to evaluate the work done, to offer suggestions for improvement, and to aid in problem solving.

Furnishing the House. The playhouse was much admired by the children, and they immediately wanted to play in it. It was then that a need for furnishings for the playhouse was felt. A list of the pieces of furniture needed was made and recorded:

- We need chairs for our playhouse
- We need a cupboard for our playhouse.
- We need a davenport for our playhouse.
- We need a table for our playhouse.
- We need a stove for our playhouse.

The children had been using four chairs made from orange boxes for their reading corner. These chairs had been made by a former class and were very much liked by the children.

Bobby asked why we couldn't just use these chairs in the playhouse.

Joan said we needed them where they were, and we could make some more.

Orange boxes were brought in by the children and more were requisitioned. Apple boxes, cheese boxes, and a load of scrap wood arrived.

Making Furniture. Soon everyone was busy making furniture for the playhouse. Chairs, tables, a cupboard, a davenport, and a bed were made.

Many problems incidental to their construction arose. These were often solved by suggestions from the class during the discussion periods following the work periods. At this time the work done was evaluated, and problems were presented for consideration by the class.

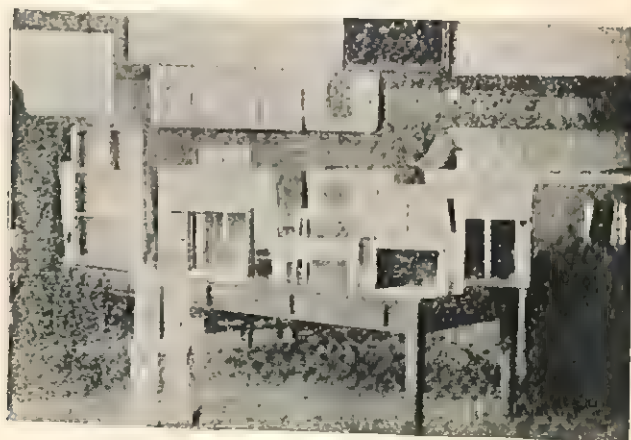
Nancy said that she thought the chairs should have cushions on them, so some cretonne was bought and very gay, pretty cushions were made which added greatly to the attractiveness of the house furnishings.

The House
Completed



Making
Furniture
for
the House

The Completed
Furniture



Curtains were hemmed and hung at the windows. Table covers were made. Shelf papers for the cupboard shelves were designed and completed.

Dishes were made from clay and were painted in bright colors, simulating the gay pottery of today.

Pictures were drawn and painted and hung on the walls.

A Study of Cotton. The cushions were filled with cotton and a discussion arose as to where cotton comes from.

JOAN. Cotton comes from sheep.

SHARON. It comes from the pussy willow.

In the discussion that followed some of the children remembered that wool comes from sheep.

The teacher told them that cotton comes from a plant. She brought a cotton boll to school. The children were interested in examining the boll and feeling the cotton seeds after hearing the story of Eli Whitney and the cotton gin. They were interested in finding all the things in the room that were made of cotton.

Dramatic Play. The house was now ready. The children were very anxious to play in the playhouse, and it became so crowded that some rules had to be made for using it. The following were formulated in a class conference:

Only four children can be in the playhouse at one time.

We must keep our voices quiet.

We must be careful of the furniture.

Besides playing house, the children played "The Three Bears," "Alice and Mother," "Ned and Grandmother," and other favorite stories.

One day the teacher overheard the following conversation in the playhouse:

BETTY. I will be the mother.

JIMMIE. And I am the father. The rest of you can be the children. I am going to work. I will get the car out.

BETTY. You children may go to school. I will do my work.

TEACHER (*as Betty came out to shake a small table cover*). You seem to be very busy today.

BETTY. Yes, I am the mother, and I have lots to do.

TEACHER. What is a mother's work?

In the discussion which followed, the children decided that Mother does many things in the home.

The teacher suggested that the children bring in pictures showing Mother's work.

The children brought in pictures of many of Mother's activities. These pictures were placed on the bulletin board, and the proper caption was printed for each and placed beneath it:

Mother Cooks Our Food
 Mother Washes Our Clothes
 Mother Sews for Us
 Mother Irons Our Clothes
 Mother Takes Care of the Baby
 Mother Reads to Us
 Mother Cans Fruit

Father's work was discussed also. All were of the opinion that Father is the one who earns the money and helps a little at home.

Jimmie said it made him think of a poem we know:

What does the bee do?
 Brings home the honey.
 What does Father do?
 Brings home the money.
 What does Mother do?
 Lays out the money.
 What does Baby do?
 Eats up the honey.

We then talked about how the children in the home can help, and many suggestions on how to help Mother and Father make the home happy and efficient were made.

ROBERT. I sweep the porches for Mother.

PHYLLIS. I go to the store for Mother

JOAN. I wash the dishes every day.

BILLY. I help my mother cook.

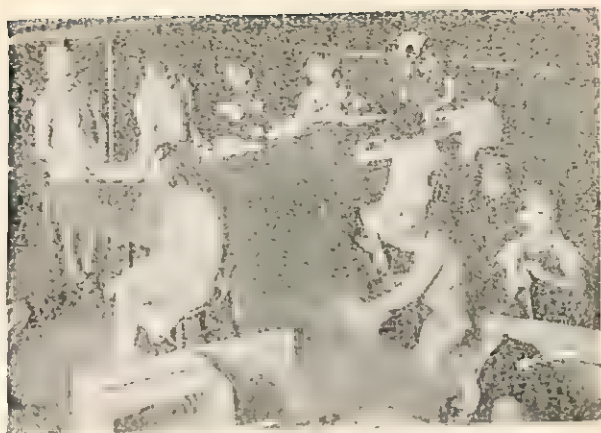
Billy's statement brought out the fact that several children had had experience in helping Mother cook.

Kenneth said, "We made fudge in the kindergarten."

Jimmie asked why we couldn't cook in our playhouse. The children all agreed that this would be a great idea.

A Cooking Activity. Where to get a stove on which to cook came up im-

Making Cur-
tains for
the House



Playing
House

Cooking Dinner



mediately for discussion. A conference with the janitor disclosed the fact that we could not use the electric grill in our room because we had no way to connect it. It was finally decided that we could use the stove in the cafeteria kitchen.

With the stove question settled, the discussion arose about what to cook. Jimmie said he would like to cook some beans. This gave the children the idea of cooking vegetables, and all different kinds were mentioned as being desirable for the purpose of cooking. Finally it was decided to cook peas, carrots, and potatoes.

Leiland said he would like to cook some meat.

Jimmie said we could cook the meat with the vegetables to make a stew. He had seen his mother do that.

Joan said, "That sounds good to eat. Could we eat it when it is done?"

A discussion followed in which a simple luncheon was planned, consisting of stew, biscuits, and chocolate pudding. It was also decided to eat this food for lunch on the day it was cooked instead of going home for lunch, eating at the school cafeteria, or bringing lunch from home.

Planning the Luncheon. The next discussion centered on the getting of materials to cook for the luncheon.

Dolores said she could bring some carrots from home. Other offerings were volunteered. The teacher asked the children how they liked the idea of each child bringing 10¢ from home to pay for his lunch for that day. This plan met with instant approval.

Each child took home a note which read:

Will you send 10¢ with your child to help pay the expenses of a cooking activity which we are planning in connection with our study of "Life in the Home"? Your child will eat lunch at school on the day we prepare it. I will let you know later about the time.

Sincerely yours,

As the dimes came in they were placed in a small glass bottle where the children could watch the pile grow. There was intense interest in the progress of our financial ability to purchase the materials necessary for the preparation of "Our very own cooked luncheon."

In the meantime pictures of vegetables and foods were being brought in. These were placed on the bulletin board.

The children began to draw, paint, and cut out vegetables, and to mold them from clay. They studied about different kinds of vegetables and how they grow and where they come from (farmer, gardens, grocer).

The health value of eating vegetables was discussed.

Problems to Be Solved by a Trip to the Grocery. As soon as we were financially able (we counted the money by dimes—10, 20, etc.), plans were discussed for buying our luncheon materials.

TEACHER. How many carrots do we need to buy?

BILLY. We would have to see how big the bunches are.

TEACHER. If we are going to have 30 children at our luncheon, how many potatoes do we need?

CHILDREN. 30 potatoes.

In the discussion which followed, it was decided that the size of the potatoes would determine the number.

The children dictated the following, from which a grocery list was made:

We need to buy carrots.

We need to buy peas.

We need to buy potatoes.

We need to buy chocolate pudding.

We need to buy Bisquick.

We need to buy meat.

We need to buy milk for our luncheon.

A trip to the grocery was the next step. (The teacher had visited the store on the previous day to plan with the grocer, so that all vegetables would be there and also to be assured of his willingness to have the class visit his store in a body.) Things to remember while in a grocery store were discussed and recorded.

We keep our voices quiet.

We take turns in talking.

We do not touch anything.

We ask the grocer questions.

*At the Grocery Store.*³ Upon our arrival at the grocery, we found some customers ahead of us, so a needed experience was afforded the children in awaiting their turn:

JIMMIE. Well, I see the carrots.

MARILYN. And here are the potatoes.

CHARLES. I see the peas.

³ The prices for food given here are lower than today's prices because the unit on "The Home" was developed in the 1930's.

JOAN. There is the meat counter over there.

MR. GALLOWAY. Good morning, boys and girls. I seem to have lots of customers today. What can I do for you?

BILLY. We want to buy some carrots.

MR. GALLOWAY. How many carrots do you wish? They are three bunches for a dime. There are ten carrots in a bunch.

CHILDREN. Three bunches will be enough.

MR. GALLOWAY. What else do you wish?

CHARLES. Some potatoes.

TEACHER. If we have fifteen potatoes that will be a half potato for each child. I think that will be enough, don't you?

(The grocer agreed.)

JOAN. Now we would like some peas.

MR. GALLOWAY. They are three pounds for a quarter.

TEACHER. Will you please put three pounds on the scales so that we can see how much that makes? (The children watched the hands of the scales go to the three-pound mark.) That will be enough, thank you.

MR. GALLOWAY. Who is going to shell all these peas?

CHILDREN. We are.

TEACHER. What else do we need to buy for our luncheon?

CHILDREN (*in chorus*). Chocolate pudding and Bisquick.

(These articles were purchased.)

TEACHER. I think that is all. How much do we owe you, Mr. Galloway?

The children watched Mr. Galloway use the adding machine. Then he showed them the addition slip. With a little help the children found out that we owed \$1.10. This amount was counted out from our money and paid to Mr. Galloway. It took eleven dimes.

The meat was then bought from the butcher, the packages distributed, and we walked triumphantly back to school with our purchases.

Billy's mother sold us a gallon of milk at 35¢ a gallon. It came in two two-quart bottles. (Four quarts, the children learned, make one gallon.)

Preparing the Luncheon. Our next problem was to find out how to prepare the things purchased for the luncheon. Recipes were developed by the teacher and the children, working together. These were written on the board by the teacher.

Carrots:

Wash the carrots.

Scrape the carrots.

Cut the carrots into pieces.

Put the carrots in a pan.

An Experience Unit on the Home

Put water over the carrots.
Put in some salt.
Cook the carrots until they are soft.

Peas: Shell the peas.
 Wash the peas.
 Put them in a pan.
 Put water over them.
 Put in some salt.
 Cook until they are soft.

Chocolate Pudding: Open the box of pudding.
 Put the powder in a pan.
 Mix it with three cups of milk.
 Cook it until it is thick.

Drop Biscuits: Open the box of Bisquick.
 Put four cups of it in a bowl.
 Put in two cups of milk.
 Mix it well and put spoonfuls of it on a greased pan.
 Bake for 12 minutes in a hot oven.

Potatoes: Peel the potatoes.
 Cut them into pieces.
 Wash them and put them in a kettle.
 Cook until they are soft.

These recipes were later typed and made into recipe books, one for each child. The recipes were read and reread as information was needed as to how to proceed in preparing the various foods.

The chocolate pudding was prepared on the afternoon before the serving of the luncheon. Five packages of the pudding were used, and five groups of children each made enough to serve six. The children read each line of the pudding recipe and proceeded to follow directions. The cafeteria stove was used for the cooking. Each child took a turn at stirring the mixture until the proper consistency was reached. When the five puddings were made, they were placed on the ice until the morrow's festivities.

On the morning of the day of the luncheon every child who could possibly attend school was present and eager to begin the preparation of the luncheon. After a general washing of hands and donning of aprons a list of the things to be done was made and the children were allowed to choose their parts of the

work. The written recipes were frequently consulted. Soon the peas were shelled and washed, the carrots washed and scraped and washed again, and the potatoes peeled, washed, and cut into pieces. The meat had been washed and was already cooking, "because it takes longer to cook and must be well done to be good for us." The vegetables were then added to the meat and we turned our attention to the biscuits.

With our recipe before us and with Jimmie, who has a good loud, clear voice to read it to us, we proceeded to make our biscuits.

JIMMIE. Open the box of Bisquick. Put four cups of it in a bowl. (The children counted.) Put in two cups of milk. (The children counted.) Mix it well. (Dale and Bobby did a good job of mixing.) Put spoonfuls of the mixture on a well-greased pan. (Mary and Betty greased the pans vigorously. The mixture was placed on them.) Bake for 12 minutes in a hot oven. (They were baked 12 minutes exactly.)

The children, with the exception of the table committee, then had a short intermission while the tables were being covered with paper tablecloths. The table decorations were sweet peas which had been brought from the homes and arranged in vases. The committee placed green paper napkins and spoons at each place. The flowers were placed on the tables. When the children saw the "beautiful" tables they were delighted.

The Parent-Teachers' Association room mothers served the plates, with a biscuit and some of the stew on each plate. These mothers, who had been invited by the teacher, were very interested observers during the morning.

When the luncheon was ready, the children stood at their places until everyone, including the mothers and the principal, had been placed.

"This is the simple blessing we asked over our food: 'God is great, God is good, and we thank Him for our food. Amen.'"

We seated ourselves, unfolded our napkins and laid them in our laps, and then proceeded to enjoy the fruits of our labor.

Quiet, informal conversation was carried on at the tables.

Jimmie, who sat near the principal, told her of some of our activities. He also explained just how to make "these lovely, tender biscuits" by reading the recipe to her.

The food was enjoyed by the children. One of the mothers told the teacher that her child would never eat carrots at home.

The pudding was served and looked very tempting. With just a few reminders, all waited until everyone was served before beginning to partake.

BILLY. My, this is good! My mother makes this at home.

KENNETH. This is the best I ever ate.

The dishwashing and cleaning up, which was an enjoyable part of the activity, came after a brief recess.

Everyone wanted to wash dishes. Joan, who said she did it often for her mother, had the first chance. Many others had turns, while still others wiped the dishes and stacked them neatly.

Everything was put back in its proper place in the cafeteria, and thus ended one of the most pleasurable and interesting activities in the unit of work on "The Home."

Jimmie said, "My mother does this work three times a day!"

This showed that there is at least a beginning realization of Mother's work in the home.

OUTCOMES

The unit of work on the home stimulated many vital and interesting experiences for the children. These experiences resulted in definite outcomes in terms of understandings, attitudes and appreciations, and essential abilities.

Understandings

1. A growing realization of Father's responsibility in providing a living for members of his family.
2. A growing realization of the importance of Mother's work in the home.
3. A better understanding of how each member of the family can contribute to its well-being.
4. A growing realization of the fact that we obtain the necessities of life from many sources.
5. An increased understanding of how many people help us by providing us with food, shelter, and clothing.
6. A better understanding of some of the important facts regarding sanitation and health.

Attitudes and Appreciations

1. A growing feeling of pleasure in helping other people.
2. A feeling of joy in the successful accomplishments of others and of ourselves.
3. A growing desire for cleanliness in person and environment.
4. Increased appreciations of music, art, and literature.

Essential Abilities

1. Better co-operation in working together.
2. More efficient planning.

3. Greater skill in problem solving.
4. Learning to read. Rapid progress was made by those ready to read. (Those unready were not forced. Five of the thirty children did not attempt the actual mechanics of reading.)
5. Developing skill in research. Learning to answer questions through reading, through collecting and studying pictures, and by special excursions.
6. Increase in spontaneity in language expression.
7. Better habits of observation.
8. Improvement in English expression.
9. Mathematical concepts.
 - (a) Learning to estimate size, weight, and number.
 - (b) Learning the cost of things.
 - (c) Learning to count by tens.
 - (d) Acquaintance with the adding machine.
 - (e) Learning to use measuring instruments.
10. Learning to shop at the store.
11. Learning to finish the job at hand.
12. Learning to do a good job of cleaning up.
13. Practicing habits of orderliness.
14. Practicing being courteous.
15. Learning how to prepare some foods.
16. Practice in better health habits.
17. Learning to sing some songs.
18. Learning to say some poems.

JUSTIFYING THE BUILDING OF THE PLAYHOUSE IN THE FIRST GRADE

1. It provides opportunity for normal child activity.
2. It gives much opportunity for planning.
3. It provides meaningful content for reading activities.
4. It develops muscular control and skill in manual construction, including the proper use of tools.
5. It gives much opportunity for problem solving.
6. It gives the chance for initiative and leadership.
7. It contributes citizenship values by providing experiences in working with the group.
8. It gives *all* children an active part, so that there is a gain for all. Each child enjoys the satisfaction of successful participation.
9. It takes care of the problem of busywork. Purposeful activity takes its place.
10. The finished house, by providing an excellent setting for dramatic play

and the reliving of experiences, aids in clarifying ideas and in developing understandings of home life and our responsibilities in regard to it.

JUSTIFYING THE COOKING ACTIVITY

1. It takes care of normal child activity and initiative.
2. It gives experience in making adjustments while working with the group and in organizing the group for efficiency.
3. It affords opportunity for the expression of ideas in a natural situation.
4. It furnishes beginnings in number concept and gives concrete experience in measuring, counting, and comparing.
5. It increases the speaking and the reading vocabulary.
6. It instills ideas of orderliness by giving practice in the proper arrangement of cooking materials and utensils.
7. It provides an interesting study of foods in relation to well-balanced meals, including planning healthful menus, learning the proper use of sugar and seasonings, and learning good food combinations, such as carrots and peas, milk and eggs.
8. It provides a study of foods in relation to health and develops a better understanding of sanitary conditions which should be incident to the preparation of food: clean hands, clean utensils, proper way to wash and dry dishes.
9. It gives a beginning realization of the amount of labor necessary to provide the food we eat: producer's work, Father's work, Mother's work, how children themselves may help.
10. It gives the children the opportunity of proposing, planning, and choosing.
11. It brings about an appreciation of what Father and Mother really do for the family in the way of providing and preparing the necessities of life.

MATERIALS AND CONSTRUCTION

Building a Silo. Three large oatmeal boxes were placed on top of one another. Paper tubing for the pipe was run up the side of the silo. A small piece of rubber hose at the top was bent into the silo for the ensilage to pass through.

Building Farm Buildings. Barn, milk house, chicken houses, tool house, and farmer's home were made from apple boxes, orange crates, and small wooden boxes.

Farm Trucks and Wagons. These were made very satisfactorily from small cheese boxes by sawing off part of the box for the cab. The hoods of the cars were blocks of wood. Button molds were used for wheels and steering wheels. Other boxes were also used.

Farm Animals and Chickens. These were made from cardboard and set in standards. The chicken eggs were made of clay and painted white.

Making a Playhouse Large Enough to Play In. The frame was 7½ feet by 8 feet and was 5 feet high. The frame was made of boards 1 inch by 4 inches, with corner uprights 3 inches by 3 inches. The walls were made of large sheets of heavy cardboard tacked to the frame. The roof was a large piece of heavy paper. The house had one door 4 feet by 2 feet and 8 windows 1½ feet by 1½ feet. The children painted the outside walls of the house green, the roof red, and the inside walls yellow, using calcimine paints.

Furniture and Furnishings. These were made from pieces of soft pine of different sizes, orange crates, apple boxes, and other boxes. The curtains were made of used net curtains, hemmed at the top and bottom. The cushions were made of flowered cretonne filled with cotton and knotted with yarn. The table covers, made of monk's cloth, were fringed and decorated with crayola. The shelf papers were made of newsprint, with designs put on with crayola.

Dishes. The dishes were made of clay and painted in gay colors with calcimine paints.

Pictures. These were painted on newsprint 17 inches by 21 inches, placed on large easels.

Picture Books. These were scrapbooks of pets and illustrated records of our various experiences.

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PROBLEMS FOR STUDY AND DISCUSSION

1. In the first-grade room where the unit on "The Home" was developed, most of the early reading experiences of the children grew out of the various unit activities. There was little or no formal reading instruction during the early months of the year. On what grounds can you justify this procedure?
2. The statement is often heard that activity-type primary schools teach no arithmetic—that they neglect the three R.'s. Is this true? What are the fundamental differences in thinking on this point between the conventional and the more progressive teachers?
3. Many of the activities of the unit discussed in this chapter were primarily to foster social growth. Can you justify taking time during the regular school day for this purpose? How?
4. To what extent was there definite teacher guidance in the activities of the unit? To what extent were the activities of the year dictated by child interest and purpose?

The suggested readings for Chapter 3 are combined with those for Chapter 4. See page 119.

4 · The Experience Unit (continued)

LOG OF AN EXPERIENCE UNIT ON WEATHER

The following unit was developed in a combined fourth and fifth grade in the Magnolia School in Riverside, California, under the leadership of the room teacher, Mrs. Jane Lunt. The description is hers. The unit got under way about the middle of the school term and consumed approximately one third of each school day for the remainder of the year. A careful reading of the unit will give one a fair comprehension of the scope of the unit and of the extent to which it contributed to the development of essential abilities, as well as to basic social and scientific understandings, attitudes, and appreciations. In spite of the fact that this unit was developed a number of years ago, it still is an excellent example of modern classroom teaching.

A Unit on Weather

Combined Fourth and Fifth Grade
Magnolia School, Riverside, California
Mrs. Jane Lunt, Teacher

GENERAL STATEMENT

The following account is a record of the experiences of the children of a mixed fourth and fifth grade in the Magnolia School, Riverside, California, in carrying on a scientific study of weather and climate.

Since weather is ever present and constantly changing, it affords a broad field for observation and scientific study and for developing an increased appreciation of natural phenomena. An awakening sense of the part played by weather in literature, music, art, and drama may well result, as may a better understanding of the influence of climatic factors on the economic life of a people. Such considerations seemed to justify the time and effort devoted to the unit.

LOG OF DEVELOPMENT

Introduction of Unit. The weather conditions of the winter of 1936-1937, unusual even for California, were largely responsible for the initial interest aroused. An excessive cold spell sent temperatures below the freezing point, menacing and in many sections destroying the crop of unpicked oranges. Radio warnings were broadcast at frequent intervals, advising growers of temperature variations. Newspapers published daily weather reports containing temperature comparisons with cold periods of former years. The drama of handling the smudge pots for crop protection was enacted for some three weeks. Oil tankers rolled in steady lines, carrying oil for the groves. Smudge pots were filled daily, and when the danger point of 28° neared, crews sped along the rows with flame-dripping torches, touching off the stoves, which flooded the groves with an eerie light. This unusual condition had a definite psychological as well as physical effect upon both children and adults. The children were conscious of the weather to an unusual degree, and a sense of excitement prevailed.

The presence of black, oily globules of smudge on faces, books, windows, trees, and filling the air itself made smudging the general topic of conversation for several days. Some of the children described scenes at home at the time the temperature warnings were received and their fathers would leave for the groves with crews to light the smudge pots. Some of the questions asked were:

- "How can you tell it's time to smudge?"
- "Who sends the reports?"
- "How long must the pots stay lighted?"
- "What happens when it freezes?"
- "Why doesn't it snow?"

As the interest of the class in weather became more marked, the teacher called to the attention of the class the instruments operating in the room: a thermometer and a thermostat on the heating unit. A set of science readers was made available, and the class did extensive reading about temperatures, snow, fog, freezing, dew point, frost, and other weather topics.

In their reading the children became aware of another instrument frequently mentioned, the barometer. John asked, "If barometers are used so much, can't we have one?" An instructor in the physics department of the Riverside Junior College was approached, and he provided the class with an aneroid barometer. This naturally led to a desire on the part of the children to be able to read the instruments in the room and to interpret their readings

correctly. Then the idea of taking temperatures both indoors and outdoors was presented. A thermometer was installed outside the window, and interesting comparisons were afforded with the one in the room.

During a discussion period David, in characteristic fashion, said, "What's the use of reading all this stuff if we don't do anything about it?"

Betty asked, "What could we do?"

The teacher discussed rather briefly the existence and operation of the U. S. Weather Bureau. A committee was appointed to read and report in detail about this work.

During the delivery of the report of the Research Committee someone broke in with: "Let's build a weather station and keep records like that." This suggestion met with almost unanimous approval.

Later, Ethel advised the group that she had read that they could send to San Francisco and get actual daily weather maps by subscribing for them at twenty cents per month. The class approved the subscription idea, and Ethel was nominated to write the letter. This idea was later extended to include a subscription to the daily U. S. weather map from Washington, D. C.

The class soon realized that if the different planned activities were to be carried out successfully and the accumulating materials used intelligently, some form of committee organization would be needed. The committees named were Meteorologist Committee, Planning and Building Committee, and Research Committee.

As considerable record keeping was necessary, a form for recording data was designed by the class, and mimeographed copies were made for use.

An understanding of the necessity for making neat and accurate figures became apparent. The first meteorologists elected were deposed because their figures were illegible. Dean made this constructive suggestion: "Let's have the teacher show us how to make figures the right way and all practice, because we'll all want to be meteorologists sometime."

This idea met with approval, and instruction and practice in making good figures was carried on for several days.

Building and Using the Weather Station. Early in February the Planning and Building Committee began laying out the floor plan of a weather station in one corner of the room. The children experimented with some large panels of cardboard which had been made earlier in the year for display purposes. As they arranged and rearranged these for height and size, some members chalked out the plan on the floor while others wrote the measurements on the board. Plans and diagrams were drawn, submitted, and amended, and actual construction was finally begun. By the end of February the building was assembled. The members of the class were particularly appreciative of its square, rigid sides standing plumb with the walls of the building. They also

were satisfied with the feeling of security in the strongly constructed, well-anchored ladder up which they could climb to the lookout.

When the building was completed, Bobby brought his binoculars to use in making observations. Bulletin boards on which to mount the reading charts were made from cardboard. The thermometer, barometer, hygrometer, and compass were installed. A desk was built along one wall and furnished with pencils, thumbtacks, paper clips, and other necessary office paraphernalia. Maps were displayed on the walls as they arrived. The chart of cloud formations was given a prominent position. Reference books were placed in the station. The suitable weather flag was flown from the railing. Marilyn designed, made, and hung the weather station sign. It was a point of honor for each committee to leave the station in order for its successor.

John and Bobby reported on ocean and wind currents, using a large map of the world which they had made.

Some of the members commented that the building was beginning to look a little dingy, and Bobby suggested that it needed a coat of paint. A color scheme was selected by popular vote, painting committees were chosen, and the paint was ordered. The station was soon transformed.

Amelia Earhart's Flight. One day during the meeting of the Current Events Club the entire period was devoted to a discussion of Amelia Earhart's projected flight.

Bobby suggested, "Why can't we pretend to go with her around the world at the equator?"

Someone else said, "We could pretend to be stowaways on her Lockheed Electra."

The general opinion was, "That would be fun."

The teacher asked if the class would like to find out something of the climate of the equatorial countries to be crossed. This met with the approval of the majority, and the study progressed with increasing interest.

David and Ethel volunteered to draw a large map of the flight. The points of landing were listed on the board by Marilyn. A committee was chosen to make and design a scrapbook of newspaper clippings. All the children undertook the research connected with the study. They investigated the topography and climate of Southern California, the Hawaiian Islands, Northern Australia, India, and Africa. The children became intensely interested in studying solar phenomena, and made continuous use of a terrascope furnished by the city school library department. They studied about variations of the heat equator, causes of seasons, day and night, and variations in lengths of days.

On the day Miss Earhart began her flight the children chose Betty to be Miss Earhart, Bobby to be Captain Noonan, and David to be Mr. Mantz.

Room 12
Magnolia School
Riverside, Calif.
March 22, 1937

Dear Mrs. Putnam,

Our room decided to go with you, Mr. Manning, Mr. Noonan, and Mr. Mantz, on your equatorial flight, as stowaways. We are very glad, today, that you are such an excellent aviatrix and landed us safely.

We are reading about you and keeping a log of our flight. To make the flight seem more real, "sound effects" are used. Cardboard is pinned with clothespins against the spokes of a bicycle wheel, then the pedal is turned real hard, to make the sound of a motor. We take turns pretending we are you and the members of your crew.

All of us in this room, a combined fourth and fifth grade, are studying about weather, and have built a weather station, 7' \times 6'3" and 6'4" high, in our room. We could send you a weather report, as we forecast from our daily readings. In our room are an aneroid barometer, two Fahrenheit thermometers, and a hygrometer. We have on hand all the materials to make a mercury barometer. There is also a small compass, and we are very much interested in the one you use because we know that it shows directions so much more accurately. We receive weather maps daily from Washington, D. C., and San Francisco.

Now we hope that we are not asking too much by telling you that we would greatly appreciate a plan or a photograph of the cockpit of the Lockheed Electra, showing particularly the instrument board. We would also appreciate your autographed picture or, better still, to have you visit us sometime when you are in Riverside again. Many of us have seen your wings on the Fliers' Wall at the Mission Inn.

We are pretending that we have paid our fare on the *Malolo* as we were discovered going aboard.

We hope to go on the rest of the trip with you. We are truly sorry on your account for the delay.

Good-by to a great pilot from
ROOM 12 STOWAWAYS

Letter Written to Amelia Earhart Putnam

Lyal's bicycle was rigged with a couple of pasteboards protruding into the spokes of the rear wheel, so that when the pedals were turned rapidly, sound effects of an airplane motor were produced. Each child arranged himself on the floor, contact was made, the motor whirled, and the flight was begun.

As they flew along, different members pointed out the phenomena of the air about them and the ocean below. Representative comments were:

"My, the ocean looks green."

"It's awfully warm up here."

"It won't be when we get higher."

"Look at that bank of fog."

"That means it's getting cooler already."

"Hope we don't get lost."

"How can we, with all our instruments?"

Finally Diamond Head was sighted and the pilot brought the plane down. When the radio report of the disastrous take-off came over the radio, the children's excitement was intense. They determined to write Mrs. Putnam immediately so that she would find the letter on her return to Burbank.

Mr. Putnam answered their letter, and later Miss Earhart sent her autographed picture. No plan of the instrument board was received, but the

March 31, 1937

The Stowaways
Room 12
Magnolia School
Riverside, California

Dear Stowaways:

Miss Earhart has read with much pleasure your interesting letter of March 22.

Just at the moment, she is too submerged in matters pertaining to the repair of her plane to have chance for correspondence, so she has asked me to acknowledge your letter, to thank you for it, and tell you how pleasant it is to know you are all interested in her flight.

She would like to feel that you really are with her.

Sincerely,

(Signed) G. P. PUTNAM

Reply to Amelia Earhart Putnam Letter

children were appreciative of the stress of preparing for the postponed flight and were not disappointed.¹

The following is the pupils' log of the imaginary flight:

'Round the World with Amelia Earhart
(Log of Flight)

The children in Room 12 are stowaways on Amelia Earhart's silver Lockheed Electra, bound for an equatorial flight around the world. We took off at Oakland, California, 120 W. Longitude, 34 N. Latitude, at 4:37½ P. S. T., March 17, 1937.

We passed the giant Sikorsky at 5:40 P.M.

During the night we looked at the stars for directions, studied maps, read our instruments, followed the compass, and listened to KFI, which broadcast for us all night.

About 3:00 A.M. Honolulu time, the radio beam told us that we were nearing the islands. Our instruments showed 156:40 W. Longitude and 21:00 N. Latitude. It was still dark and cloudy and the crowd was so thick that we waited until sunrise to land. We finally landed and then took off again, in order to slow down the speed of the plane. This was at 8:27 A.M., P. S. T.

Rhythms. The children of this class were unusually interested in creating rhythms. During the rainy weather they had asked their music teacher to teach them many rain and weather songs. Favorite poems had been brought to class and read, and some original poems had been written. Dramatic play portraying water vapor rising, clouds forming, rain falling and forming streams running toward the ocean was evolved into an organized rhythm of "A Cycle of Rain." This was presented to mothers and other invited guests near the end of the year.

Excursion to Soil-Erosion Project. Late in May a member of the Sierra Club of Riverside, knowing of the activities of the class, told the teacher of an extremely worth-while excursion taken by the club to the San Dimas Experimental Forest, where instruments for recording weather are in constant use. A trip was arranged by contact with the Forest Service and the children's mothers, and taken on June 5. The attitude of respect for the government meteorologists who gave their time to the soil-erosion project was very noticeable, and interest in the use of the various instruments was marked. As a consequence, the group was shown many courtesies. A summary lecture by the chief meteorologist, as the group sat on the porch of the museum before returning, was greatly appreciated and well attended.

¹ The second and tragic attempt was not made until after school had closed.

Excursion to View the Eclipse. My Weekly Reader of May 17-21, 1937, carried a front-page account of "An Eclipse That Travels Backwards." This report, which was read to the class during a Current Events Club meeting, aroused considerable interest. A committee was appointed to carry out research on eclipses. Subsequent daily newspaper accounts began to appear with increasing frequency. One morning Joe asked, "Why don't we play we're scientists and climb to the top of Pachappa [a low hill near the school] and view the eclipse from there?"

A committee was chosen to request permission from the principal, which was granted at once, and the usual letters were written home to obtain parents' consent. At about eleven o'clock on the morning of June 8, equipped with pieces of overexposed film, smoked glasses, binoculars, and lunches, the class began the climb. Observations were satisfactory, and a report was made to the principal upon return to the building at about 2:30 P.M.

Scrapbook. As the end of the term drew near, Marilyn asked what was to be done with all the created and collected materials when the weather station should be dismantled. The class decided that individual scrapbooks would be valuable souvenirs of their efforts. These were designed, assembled, and arranged according to original ideas of color and form, but followed a formal plan of construction. They contained information which each one deemed to be of value to himself, and were taken home at the close of school.

Contacts with Other Rooms. At various intervals during the development of the unit other groups from the building were invited to visit the weather station and witness demonstrations and experiments. On several occasions during the life of the unit, members of the class were invited to different rooms to give talks on weather, causes of seasons, and other related topics.

Test Program. During the last week of the term a composite test on information and principles pertinent to the unit was administered. The group welcomed the opportunity to measure their growth. Familiarity with terms and subject matter made the testing experience a really joyous one. In fact, too great familiarity probably prevented some from making as thoughtful responses as could have been desired.

DETAILED ACCOUNTS OF THE LEARNING ACTIVITIES OF THE UNIT

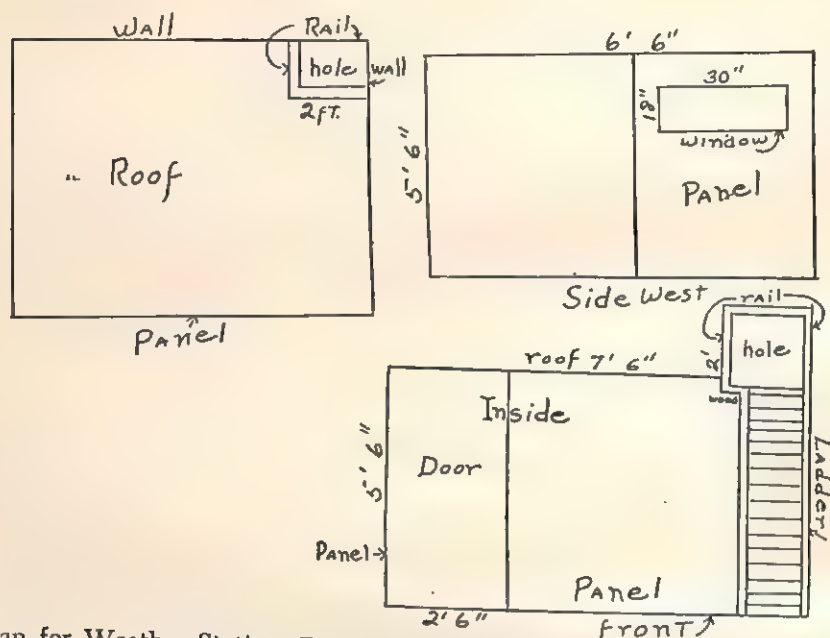
Construction of Weather Station. In February the Planning and Building Committee determined on the location, dimensions, and type of construction for the weather station. Lylal drew a plan according to a picture of a station found in one of the science books. Using the cardboard panels mentioned in the narrative account, the committee experimented with buildings of different heights, widths, and lengths. After considerable class discussion, the following dimensions were decided upon:

76 The Experience Unit

Floor, 6'6" x 7'6"

Side-wall height, 5'6" (so the teacher can stand up in the building)

Height of roof at ridge, 6'6"



Plan for Weather Station, Drawn by Lyal M. Lyal. This drawing was severely criticized by the class because it was not made to scale nor squared on the paper. Since it was Lyal's first active participation and was a very valuable experience in overcoming an attitude of nonparticipation, the teacher urged its acceptance.

The type of construction decided upon was cardboard mounted on wooden frames of 1" x 3" pine.

The committee solicited considerable material from the class. A local hardware store provided several large mattress cartons for the sides of the station.

The teacher demonstrated the use of rabbit joints to make the corners of the framework flush. This involved using the square to lay off the corners, accurate sawing to the proper depth, and careful handling of a sharp chisel.

One panel 6'6" long and 5'6" high was built with a window opening 18" x 30". The other panel was built with a doorway 2'6" x 5'3". When the panel was in place, the section of 1" x 3" framework was cut out at the bottom of the door.

The class decided to build the station in a corner of the room. This necessitated the construction of only two sides for the building and made the station more sturdy than it would have been otherwise.

As the roof was being constructed one of the children said, "Let's leave a hole in the corner and then we can climb up and look out like in an observation tower." Some of the comments were:

"What'll you climb up on?"

"We'll get the stepladder from Mr. Russell."

"We couldn't keep it all the time; everybody uses it."

"Then let's make our own ladder."

"In Lyal's picture there's a railing around the hole in the roof."

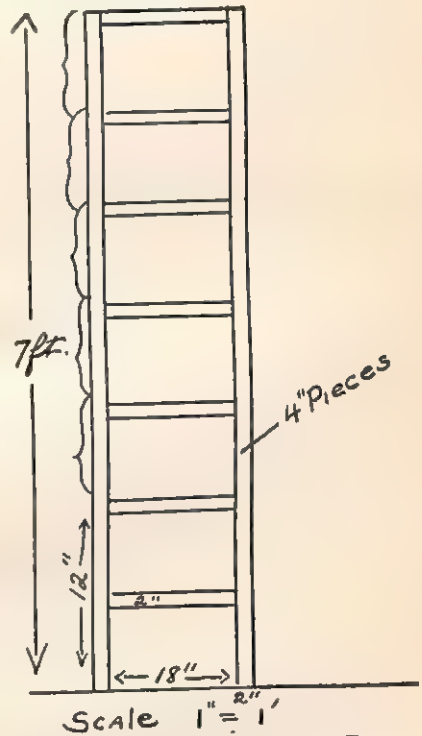
"If George will help me, I'll make a railing."

"Bobby and I'll make the ladder."

Plans were amended and the roof was installed with a hole 2 feet square in the upper corner. Sketches of the railing and ladder, drawn to scale, were submitted. The plans were approved, and a list of needed materials was made by the class and requisitioned by the teacher. Vincent and Bobby H. made a light but strong ladder, and Bobby R. and George constructed the railing.

The treads of the ladder were nailed securely between the two side pieces. Literally hundreds of trips were made up and down the ladder by the class and by scores of visitors. The group appreciated the sturdiness of construction as the ladder remained firm to the end of the year. One comment was, "Bobby and George sure get off easy. They only have to make two sides of the railing. The room walls make the other two sides."

The class soon became aware of the drab appearance of the building and decided that it needed a coat of paint. It was unanimously decided that since the boys had done most of the construction, the girls should have the first opportunity to do the painting, except that the three boys who had



Plan for Ladder to Lookout, Drawn by Bobby H. and Vincent

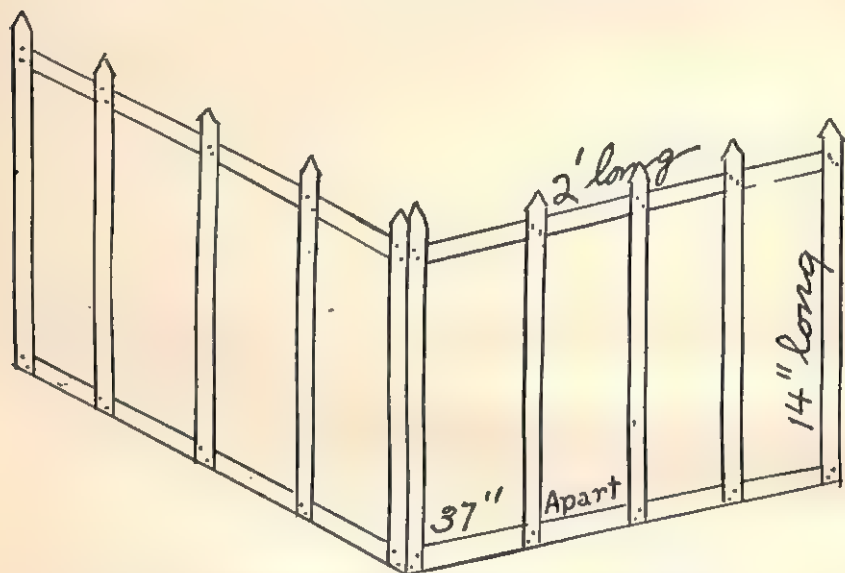
78 *The Experience Unit*

carried on the bookkeeping and research during construction period should be allowed to help.

Now arose the question of what colors would be best. The children considered several possible color combinations, and a number of suggestions were made. Lyal suggested green and white.

Bobby S. said, "That should be the colors. Almost all weather stations are white with green roofs."

This remark carried considerable influence. Since the majority of choices for the building were white, that color was quickly determined upon. The



Plan for the Railing on the Lookout, Drawn by Bobby R.

class decided to vote for a roof color, keeping in mind Bobby's remark about government buildings. It was interesting to note that although green as a roof color was mentioned only once, the class voted 21 to 6 for a green roof.

Gathering and Constructing Instruments and Equipment. When the building was finished, Bobby H. brought a pair of binoculars to school to use in dramatic play in making observations from the tower.

One day Marlene, who was standing on top of the ladder, said, "My, it's hot up here. I'll bet it's a lot hotter than down there. Let's put another thermometer up here."

In the discussion period the class investigated the theories of rising warm air and wind currents, and spent several periods studying about and discussing the heat equator and its effect upon air currents.

Joyce showed some pictures of official weather flags to the class.

JOYCE. I'd like to make some of these if someone will help.
 MARILYN. I will.
 BETTY. So will I.

Two of the boys volunteered to prepare the sticks for mounting. Bobby brought some black and some white cambric. At the end of the second work period the flags were ready.

Joyce took one up the lookout, then called down, "How'll I fasten it?"

"Use some wire" and "Here's some string" were the answers.

David said, "Those aren't any good. I'll make a holder. I know where there's some wood just the right size."

David made a diagram of the holder, cut it out from a block of wood, painted it white, and installed it. In doing this he used a brace and bit for the first time, to make the hole for the staff of the flag.

A large table covered with Manila paper, with a sheet of asbestos at one end, was placed in the station.

Paraphernalia for simple experiments, brought from the homes or borrowed from the physics department, included the following:

Jar, saucer, candle, and matches for testing oxygen consumption.

A sterno stove and a pyrex beaker, salt and water, for evaporation experiments.

An electric furnace and lead to show the melting point of lead.

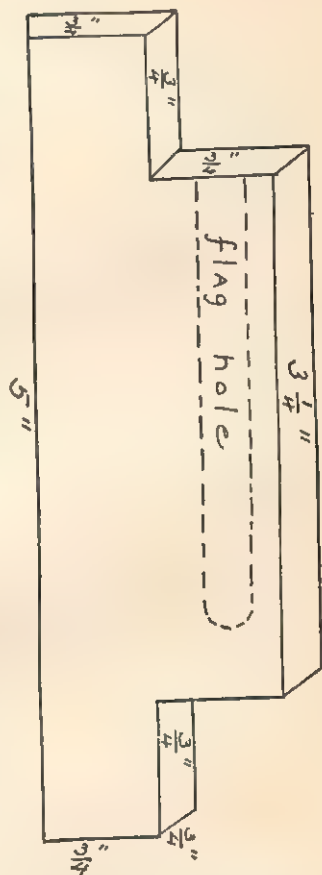
Materials for making a mercury barometer.

Bobby R. wrote the following letter to the teacher, soliciting materials for the barometer:

Dear Mrs. Lunt:

These are the things we need to make a mercury barometer.

We need a glass tube about 34" long (it will have to be closed at one end), a cup, a board as long as the glass tube to mount it on, and about 2 pounds of mercury.



Pattern for Flag Holder,
 Drawn by David H.

You fill the tube with mercury, then put your thumb over the open end, then put that end in a little cup half filled with mercury. The liquid in the tube will fall until its top is only 30 inches above the bottom of the cup. Then numbers are put on the piece of wood to show the rising and falling pressure.

Sincerely yours,
BOBBY R.

Again an appeal to the physics department at the junior college met with an adequate response. We were provided with the glass tubing, a small glass funnel, and two pounds of used mercury.

The committee, of which Bobby R. was chairman, prepared a board 36" long and 3" wide, complete with a little shelf to hold the cup and two metal hangers to hold the tube upright. During a work period the materials were assembled and Bobby R. directed the work of filling and mounting the tube.

As soon as the tube was secure, Bobby R. measured the column of mercury. Construction was deemed a success when comparison with the aneroid barometer showed the same reading of 29.3 inches on both instruments.

Excursion to Soil-Erosion Project. Early in May the Sierra Club of Riverside made a trip to the San Dimas Experimental Forest and reported the occurrence to the teacher. Immediately plans for an excursion were formulated. A committee waited upon the principal to obtain her consent, and letters were written to parents.

Dear Mother:

Mrs. Lunt wants to take us to the San Dimas Experimental Forest on Saturday, May 8, to see some real weather instruments in use.

It is 13 miles up in a canyon back of San Dimas. We want to leave Riverside at about 8 o'clock and will be back by 4:30. We will take a picnic lunch.

May I go?

Will you provide transportation? Yes

No

For how many?

YOUR CHILD

Responses were gratifying, and the teacher called the Forest Service at Glendora by telephone to make arrangements for guide service.

The following résumé of the trip to the San Dimas Canyon Soil-Erosion Project, May 8, 1937, was made by the children for the benefit of the principal and a few members of the class who were unable to go on the

excursion. It was recorded by the teacher as given. The class chairman conducted the meeting.

BOBBY H. When we arrived in Glendora, Mrs. Lunt went into the office and got Mr. Gleason, the ranger, who drove one of the cars up the mountain for us.

VINCENT. It was about thirteen miles up there.

BOBBY H. On the way we passed the big dam [Dalton Reservoir] which was built to keep the valley below from being flooded. Mr. Gleason told us about taking plants from the stream bottoms to be planted up on the hills to keep the soil from eroding. Plants from the stream bottoms grow well on the hillsides. On the way up we saw a stream gauge. Then we stopped at a fenced-in area used as a test plot for flowers.

ETHEL. There was a lysimeter there, too. Marlene looked over on the hillside way across and asked what a fenced-in place over there was. Mr. Gleason told her that that was an area with weather instruments in it.

MARILOU. We passed a CCC camp, too, and Mr. Gleason said that the boys from there helped read gauges after every rain.

BOBBY S. We looked way across the hills and saw the four Bell test plots with cross trails and 70 rain gauges. There are 277 acres in these plots. When we arrived at the project we rested a few minutes; then Mr. Gleason introduced Mr. Rice, another government meteorologist.

BOBBY H. Mr. Gleason asked us not to climb the banks around on the project, and Mrs. Lunt said it would be much more courteous if we walked together.

BETTY B. She said we'd hear a lot more and get more attention if we didn't race and run around.

VINCENT. Nearly everyone minded, and we only had to be told once, except Virginia and those little kids who went along. We walked up the hill a little way and the rangers let us into a wire enclosure that had all kinds of instruments in it. They asked us not to touch anything, and we didn't. They even opened up some of the things and let us see the inked needles marking on the graphs.

MARILOU. I asked what became of the records and Mr. Gleason said, "Just go down to the station at Glendora. Twenty-five men are working on comparisons from these records." There were evaporating pans, built to United States Weather Bureau specifications. One was at the surface of the ground. One was up higher, because the rate of evaporation is greater at the ground level. They had to be protected from birds drinking and bathing, because that would spoil the records. There were some other instruments that measured the difference in evaporation between light and dark surfaces, too.

ETHEL. I asked about a big, empty, white tank in the enclosure. Mr. Rice said it was to hold an evaporimeter which was being built down at the Tanbark Flat Laboratory where we left the cars.

BOBBY R. Mr. Gleason asked us how much an inch was. I told him, and then he demonstrated a standard rain gauge to us. We've seen a lot of those but didn't know what they were before. Mr. Gleason told us to think of rain falling on a dark and stormy night and then to think of a drizzly, foggy day. He said that we wouldn't notice an inch of rain on a foggy day, but if one inch fell in ten minutes it would be a flood.

He also said they must have an instrument to measure a flood, what time it came and what caused it. The recording instruments all were run by electricity and time clocks. The graphs were marked off in hours and dated. Mr. Rice showed us by graphs from the thermometer and hygrometer that when the temperatures were down, the humidity was up. Lots of the delicate instruments were in that big white box. That was an instrument shelter.

I thought it sort of interesting that all the instruments were connected by electric wires with the laboratory. There were three hydrothermographs and two maximum and minimum thermometers.

JOAN. We went up to a lysimeter—that's a soil measure—farther up the hill. They were big tanks of soil, 26 of them, 10 ft. by 21 ft., and 6 ft. deep, ready to be planted with grasses, trees, and shrubs. They are in a house now, but when they are finished they will be open to the weather. The rangers study the growth of these different kinds of plants to see which use the least moisture, which hold the soil best, and which kind is best to plant to prevent soil erosion.

We went down in a big tunnel underneath the lysimeter to see the tanks where the fall of water, the run-off, and the percolation are recorded. It's like this diagram [the San Dimas Experimental Forest Bulletin, p. 19].

GEORGE B. There were two other sizes of lysimeters, too. The little ones can be weighed. They're like the ones my dad uses at the Rubidoux station. They had to be protected from rodents by curved tin on the fence and from deer by barbed wire on top.

TOM. Why don't they want deer in there?

GEORGE B. They'd drink the water out of the evaporating pans and eat the shrubs in the lysimeter.

MARLENE. The anemometer was up there, too, and we saw the needle recording the wind speed down at the laboratory.

The following is the teacher's description of the activities of the afternoon:

The group ate their lunch on Tanbark Flat. Mr. Gleason accepted the children's invitation to join them in a picnic lunch. He expressed appreciation of their earnest attitude and complimented them on their remaining quiet



The Weather Station Completed

during luncheon and disposing of debris at its conclusion. A splendid attitude of good-fellowship and understanding was established.

After lunch the group was divided, with half of the class visiting the museum and half the laboratory. Later the groups exchanged places, so all children visited both the museum and the laboratory.

In the laboratory they were shown records being made electrically by weather instruments 50 miles away in the San Dimas Valley. They inspected barometers and wind graphs, and saw the electrical recording of the anemometer.

Betty said, "Some of the children may still think weather stations are white with green roofs, but some are really just fenced-in places."

As they entered the instrument room, the group spied a large circular instrument in one corner. Someone said, "Isn't that the thing you were going to show us, that recording evap-something?"

Mr. Gleason said, "Fine. It certainly is. An evaporimeter it is called."

He demonstrated the Montrose snow-sampler as compared with a rain gauge and explained that from 8" to 13" of snow is required to make an inch of rain. The group speculated as to the reason for the variation and arrived at the conclusion that some snow is wetter than other snow.

Beverly remarked, "We need a clock in our office. There's been one in every room here we've been in yet."

Mr. Rice explained that the herbarium, or museum, was maintained to permit study of the effect of animal life on the project—the effect of birds and snakes on erosion and seed dispersal. He showed specimens of rattler, gopher, coral-king, and striped-racer snakes, and emphasized that snakes are our friends because they kill countless rodents for food.

He suggested seed collecting as a hobby and showed some well-mounted specimens. He gave the group the following outline of information to be given about each specimen: What is it? Where was it found? When was it found? Who found it?

When the inspection tour was completed, the group assembled on the front porch, campfire fashion, and Mr. Gleason gave a comprehensive summary lecture and answered questions.

JOHN. Why do you keep this project going?

MR. GLEASON. To learn how best to manage these mountains of ours. Men ask us, "Why can't I burn off this land? It will make better pasture." We have actually burnt one of the four test plot sections. We can take the men there and show them why burnt-over land is dangerous. Great gullies are formed where the water rushes off. They can see the damage below.

HOBBY S. What's the use of the Dalton Dam we passed?

MR. GLEASON. That was built for flood protection for the people and

Room 12
Magnolia School
Riverside, California
May 10, 1937

Dear Mr. Gleason:

We enjoyed very much the trip that you conducted for us on May 8, and appreciate the extra time you gave to show us the laboratory.

We are going to make a soil thermometer. Mrs. Lunt has already asked the machine shop foreman at the high school to make us a rain gauge. We are going to try some evaporation experiments.

We have had an avocado plant growing in our room in a can since December. We are going to cover over the top of the soil, put in a pipe at the top and one at the bottom of the can, and make it into a small lysimeter. We can weigh it on the school scales.

Some of the record sheets which our class designed are enclosed for you to see.

We wish you lots of luck in carrying out your experiments and reading rain gauges and other instruments.

Good-by to a fellow meteorologist.

Room 12

Mr. Gleason
United States Forest Service
City Hall
Glendora, California

Letter of Appreciation to Mr. Gleason

crops in the San Dimas Valley. It is fortunate for us because it traps all the soil eroded down on the bottom. That gives us a splendid check on our own little reservoirs.

VIRGINIA. How far did we walk?

MR. GLEASON. About three-fourths of a mile.

VIRGINIA. Good night! and we saw all that!

At the conclusion, "Thank you's" were vociferous and Bobby H. chose his vocation on the spot: "I'm sure going to be a ranger when I grow up, and work in a place like this."

Mr. Gleason drove one of the cars down the mountain, a controlled road, and the excursion ended at home about 4 P.M.

Room 12
 Magnolia School
 Riverside, California
 May 10, 1937

Dear Mr. Rice:

We appreciated very much the time you spent showing us the weather instruments last Saturday. We learned a great deal, and we are going to try to use some of the ideas in our weather unit.

Sincerely,
 ROOM 12

Mr. Rice
 Tanbark Flats
 San Dimas Experimental Forest
 Near Glendora, California

Letter of Appreciation to Mr. Rice

The next day the children wrote letters to Mr. Gleason and Mr. Rice to thank them for the courtesy and instruction which had been extended. In reply they received a very friendly letter with much-appreciated commendation for their excellent behavior. (See page 87.) This added greatly to their growing feeling of friendliness toward government officers and agencies.

Immediate outcomes of the excursion were very noticeable. The children displayed an increased interest in research about erosion, conservation, and dams and in the planning of a soil thermometer for their own study.

Excursion to Mount Pachappa. Discussion periods of the week of May 17 were devoted to research and reports on the pending eclipse of the sun. When the children realized that the eclipse was to be partially visible from Riverside, one of them asked, "Do you suppose we could be real scientists and go up on Pachappa to see it? Let's ask Mrs. Stein [the principal]." Permission to make the trip was readily granted. A composite letter was written, giving information to the mothers and requesting permission to make the climb. The excursion was made by the entire class.

A fourth-grade member had asked, "What is an eclipse? I know it's a shadow, but what makes it?"

Bobby S. volunteered to demonstrate with the terrascop. He placed a ball between the earth and the sun. He showed how the moon could in this way blot out part or all of the sun.

Joe said, "How can that really be, when the moon is so much smaller than the sun?"

UNITED STATES DEPARTMENT OF AGRICULTURE

Forest Service

California Forest and Range Experiment Station

Glendora, California

May 18, 1937

R-Cal

Supervision

Room 12

Magnolia School

Riverside, California

Dear Children:

Your letter of May 10, with barometer and temperature record charts enclosed, was waiting for me on return from a trip to the Los Padres National Forest. I am glad that you enjoyed the trip on May 8, and I am happy that I had the opportunity to meet you.

Your plans for classroom experiments sound very interesting. I am sure that if you carry them out faithfully, record your data neatly each day, and then summarize your results periodically and at the end of the school term, you will find a great many interesting thoughts that will lead you to new fields of happy experience. It is my hope that some day I may have the pleasure of visiting you in class.

My best personal regards to each one of you.

Very sincerely yours,
(Signed) CLARK H. GLEASON
Assistant Forester

Mr. Gleason's Answer to the Class

David replied, "Just hold your hand in front of your eye and look out the window. You can blot out the whole sun, even that way."

Among the questions raised for further study were the following:

"Where will the eclipse start?"

"Is this one a whole or only a partial one?"

"Where can it be seen the best?"

"When is it to be?"

"How long will it last?"

"How can they tell when one will happen?"

"Why do scientists watch it?"

Research reading from *My Weekly Reader*, current newspapers, and the *World Book* produced the following information regarding the questions left outlined on the board:

The eclipse will start near the New Hebrides Islands off the coast of Australia.

It will be a total eclipse in that section of the Pacific Ocean.

The National Geographic Society and the U. S. Government have set up a camp in the Phoenix Islands, 5000 miles southwest of San Francisco, 1900 miles southwest of the Hawaiian Islands, and 3000 miles northeast of Australia.

This eclipse is queer. It starts on June 9 and ends on June 8. (This evoked a discussion and explanation of the international date line.)

On the Phoenix Islands is the only place where the eclipse will last more than four minutes. Its longest time is about seven minutes, but that is only visible from out in the open ocean, 1500 miles from land. It will last nearly that long in Peru.

Astronomers know the kind of mathematics which makes it possible for them to predict eclipses.

Scientists watch the eclipses to learn new facts about the sun. They take pictures of the eclipse, and test light and temperature changes. They study the sun's corona. They will make radio broadcasts during the eclipse.

Plans were rapidly formulated.

"We'll take the binoculars."

DEAN. I know a girl who has a big telescope. I'll bet I could borrow it.

"We'll need dark sunglasses."

TEACHER. They are not dark enough and you would injure your eyes. Overexposed film or smoked glass is better.

"We can smoke some glass right here. We've got candles and matches on the experiment table."

Three members were elected to act as guides. This committee climbed Pachappa several days before the class excursion. They prepared maps showing distances, the best trails, and the location of water and trees.

At eleven o'clock on June 8 the group climbed the hill, set up their station, and then retired to a group of trees to eat lunch while waiting the scheduled appearance.

While waiting for the eclipse the children discussed their research findings again and speculated on what the scientists in the Phoenix Islands might be doing. They figured the number of hours which had elapsed since the eclipse was seen there. They also computed the hours until the final glimpse would be had by the scientists on the coast of Peru. This group was impressed and intrigued by the variations in time around the world, and became very much aware of the necessity for giving consideration to the fact. They also tried to imagine what a total eclipse would be like.

When the first shadow appeared, there was intense excitement. Many of the children drew pictures showing the progression of the shadow, a small arc blotting out the lower western section of the sun's disc.

Following the passing of the eclipse, camp was cleaned, debris burned, and a scouting trip made over the hill. Later, at the teacher's signal, the guides lined up the class and the downward trek was begun.

Joe cautioned, "Remember, going down a mountain, you keep in single file and *don't run*."

George B. said, "Be plenty careful about kicking rocks loose, too."

George S. replied, "I'll come along behind and help those fourth-grade girls."

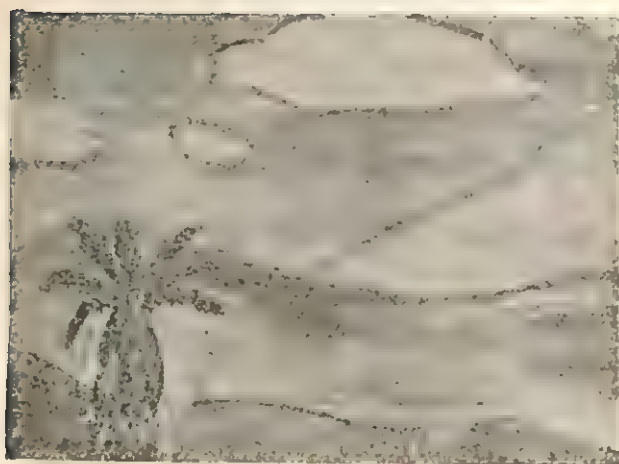
The group returned to the building about 2:30 P.M., tired but well satisfied with their undertaking.

This and similar excursions contributed greatly to the development of a sense of caution, an attitude of helpfulness, and an understanding of the necessity for orderly movement.

Creative and Appreciative Activities. (1) *Dramatic Play and Rhythms.* During the unit the children learned and sang many cloud and other nature songs, read nature poems, and expressed themselves creatively in music, art, literature, dramatic play, and rhythms. Their interest in clouds led to the suggestion that they dramatize "A Cycle of Rain." The class attended the culminating activity of a sixth-grade unit, presented for the school assembly, and were greatly stimulated by the fine performance. After some discussion the group decided to present "A Cycle of Rain" to their mothers, but not until after they had had time to work on it so that it would approach the fine standard set by the sixth grade.

Interest in the proposed rhythmic dramatization was high. The children wrote a letter to the music teacher, asking her aid. Betty painted a lovely sketch of a gray sky with scudding clouds over a sea of long green rollers. (See center picture on page 90.) The children decided to make a large back

Rhythmic
Activity—
Clouds Being
Gently Blown
Towards
Mountains



Painting
of
Clouds

Painting
of
Weather
Station



drop of this before which to play. An outline of "A Cycle of Rain" was developed and children were tried out for the portrayal of the parts of thunder, lightning, wind, and clouds. At first a group of boys were to represent tall mountains, but later the class decided to make three movable cardboard representations, so the wind could actually pass through the canyons and over the top. Discussion periods resulted in the following suggestions for rhythms:

"Lightning could wear a red and yellow suit."

"He could carry red and yellow streamers and flip them."

"We could use paper to crackle like lightning."

Room 12

February 18.

Dear Mrs. Earl,

We want to know if you will find some wind and weather songs, both to learn to sing and to hear. We are studying about weather and wind and would appreciate your help very much.

Yours very truly,

DEAN B.

The Letter to the Music Teacher

(Each member of the class wrote this type of note.)

"Oh, no, you can pop a leather belt."

"We could have rocks come loose and fall down the mountain."

"Yes, and the drum could beat when they strike."

"The cloud costumes must be white and billowy."

"Mountains mustn't all be even—the boys must kneel down or make valleys some way."

"Hold hands this way for mountains."

"No, that's too sharp—our mountains are flatter—like this."

"The mountains could be paper."

"The mountains could be rugs thrown over."

"Oh, no, you must imagine the boys are mountains."

"They can wear brown costumes."

"They must have a few white caps for snow."

"We could paint green and purple and blue shadows on the brown costumes."



Much of the rehearsing was done out of doors and called for great freedom in bodily movement as the children developed rhythmic interpretations of wind, clouds, rain, lightning, and running water.

The class held a consultation to determine on a date for presentation, then invited the mothers and other rooms to witness the production. Committees were chosen to arrange a bungalow on the school grounds for a setting.

A chairman for each committee was selected, and a list of duties for chairmen was outlined. Costumes had been designed, but interest in making them waned as many other school productions involving costuming intervened, and the group was satisfied to go about the building borrowing the costumes which most nearly fitted their designs. In fact, the interest in the final presentation never reached a high pitch, except as a satisfaction to be gained in demonstrating to the mothers. The keenest interest and most spontaneous responses grew out of the dramatic out-of-doors play stimulated by the weather-changing conditions.



The following is the outline of the rhythm:

"A Cycle of Rain"

(Back drop: an expanse of ocean)

1. The waves beat gently on the shore.
2. The sun draws moisture from the ocean. (Original song, "The Sea and the Sun")
3. A cloud is formed.
4. The prevailing west wind blows the cloud toward the mountain.
5. The cloud rests against the mountains.
6. A storm arises. (Original song, "The Storm")
7. Rain falls.
8. There is a lull after the storm.
9. Little rivulets run down the mountain side.
10. They form a broad river, flowing toward the sea
11. Repeat 1.

Instruments for Sound Effects: Drum

Sheet iron—thunder

Strap—to crack for lightning

Sand blocks—waves

(2) Literature. Following a sudden, precipitous thundershower, some original poems were created, and a reading and discussion period on rain was requested.

Arlene read John Masefield's "Roadways."

Bobby S. discovered, learned, and read Carl Sandburg's "The Fog."

Bobby R. said he particularly enjoyed John Masefield's "Trade Winds."

David read Riley's "Sudden Shower" and "Rain."

Marilou read Masefield's "Sea Fever" and was asked to reread it.

The class asked the teacher to read something about rain or water. They were much intrigued by Robert Southey's "The Cataract of Lodore."

Typical of the many original verses produced by the class are the following:

The clouds now are forming
To the music of the winds,
Into strange-looking castles
And many other things.

I've seen lambs in the sky-meadows
And steamboats in the sky.
Strange forms of people, too,
As they go passing by.

Clouds, clouds, that keep on forming.
Clouds, clouds, clouds, rolling by.

FOURTH AND FIFTH GRADES

March winds are blowing,
The snows fast are going,
Making streams and rivers
As they rush toward the sea.

ETHEL

Dew comes in the morning.
Wet is the dew that comes in the morn.
Sometimes I wonder why
The dew comes during cold winter nights.

BEVERLY

The Storm

Manuscript by Joan Handley

Words and music by
Fourth and Fifth Grades,
Magnolia School

Black clouds are gath-er-ing read-y for a storm.

Thun-der on a ram-page boom-ing through the sky.

Light-ningslash-es through the clouds, light-ing up the night.

Trees crack-ing! Thun-der clap-ping as the storm goes on.

Crack! Light-ning! Clap! Thun-der! Rain comes beat-ing down.

The musical score for 'The Storm' consists of five staves of music in 4/4 time. The melody is written on a single treble clef staff. The lyrics are written below the notes, with hyphens indicating syllables that span across multiple notes. The music is simple and rhythmic, suitable for young students.

The Sea and the Sun

Manuscript by Marilyn Mack

Words and music by
Fourth and Fifth Grades,
Magnolia School

The waves wash-ing a - gainst a sand - y
shore, a sand-y shore; Blue-green rip - ples
run a-long with the tide. The great King Sun shines
o'er the cool green sea; His gold-en pow'r is
draw - ing the wa - ters to the sky

The musical score for 'The Sea and the Sun' consists of five staves of music in 6/8 time. The key signature has two flats (B-flat and E-flat). The melody is written on a single treble clef staff. The lyrics are written below the notes, with hyphens indicating syllables that span across multiple notes. The music is simple and rhythmic, suitable for young students.

(3) Art. Cloud study from charts and bulletins made the group increasingly aware of the beauty of the cloud effects over their own building.

During a work period Betty asked, "May we take paper and pencils outside and sketch clouds?"

Permission was granted, and during the period many cloud forms were sketched.

In a later period these sketches were used as a basis of design in painting original pictures. Experiments were made with different media for reproducing sky color. Some preferred crayola, others water color, and some opaque poster paint.

David painted a weather station on a high cliff with a background of clouds. (See picture at bottom of page 90.)

Betty K.'s picture of the ocean was used as the basis of the back drop for the rain cycle.

(4) Music. The group learned a splendid repertoire of songs, some of which they wished to use in "A Cycle of Rain." Betty said, "I believe, if you will help us, Mrs. Lunt, that we could make some songs of our own."

The class knew that the teacher had recently enrolled in a class in creative music being given in Riverside by Mrs. Lillian M. Fox, music supervisor of Pasadena. This afforded a delightful opportunity for laboratory work together. The songs were created as a composite effort, seldom more than twenty to thirty minutes of time being consumed. (See page 94.)

Procedures as outlined in *Creative School Music* by Fox and Hopkins were followed to successful and satisfying conclusions. During the term the group copied and illustrated their original manuscripts.

Weather Forecasting. The meteorologists took instrument readings daily and made weather forecasts at 3 P.M. The personnel of this group was changed every two weeks.

The children studied high-pressure and low-pressure areas from the latest government maps and bulletins, made their own barometer readings for Riverside, and made predictions on the basis of these data.

The first group encountered the difficulty of determining wind direction.

MARILYN. We haven't a weather vane. How can we tell which way the wind is blowing?

GEORGE B. We need to make a weather vane.

JOE. We need to know right now.

LYAL. Spit on your finger and hold it up.

MARILYN. That isn't near enough right.

JOHN. Let's look at the flag. That'll tell, and we can use the compass to get the direction.

The next day they discovered that a family living next to the schoolhouse had a weather vane, and each succeeding group was content to use this one.

One day soon after the first group of meteorologists had begun making forecasts, Virginia said, "The kids' weather forecast was just like the paper, only different language. How do they do it?"

Bobby H. replied, "Let's go out with them this afternoon and find out."

These two took such an intelligent interest that they were elected to serve during the next term. The class determined that three meteorologists should forecast the weather and that during each period one experienced member should be retained to act with two newly elected members in order to guide them. (The teacher touched briefly on the overlapping terms of the members of the U. S. Senate.)

Each day one member of the committee brought the weather forecast from the daily paper and comparisons were made. The children's predictions during a period of unusual weather disturbances were surprisingly accurate. The display of their own forecast in comparison with an official one on the classroom door was a source of much interest and comment.

Contact with Other Groups. As the unit developed, other groups in the school evinced considerable interest. Requests for the weather forecasts were often received. The meteorologists furnished these either orally or in written form, as they chose.

At intervals other groups were invited to the room to inspect the weather station, visit the lookout, and witness experiments and terrascope demonstrations.

An increased appreciation of the host's responsibility for the entertainment and comfort of guests was aroused. The children grew in the ability to organize and present their materials to others in an interesting and educational manner. Most of these presentations were forty minutes in length.

The usual procedure for these contacts was as follows:

Sending of invitation.

Receiving acceptance.

Preparing presentation.

Setting up of experiment materials.

Setting up of terrascope.

Planning for seating guests.

Appointing host or hostess.

Appointing committees to handle individual groups and make demonstrations.

Arrival of guests.

Seating of guests (usually a visitor with each member of class).

Demonstrating terrascope and other instruments to the whole group. (15 min.)

Dividing visiting group into sections with demonstration committees in charge.

Visiting weather station and lookout.

Visiting experiment table. Explanations.

Visiting terrascope for close inspection.

During the development of the unit eight rooms and the kindergarten were entertained.

Research Activities. (1) Gathering materials. Following the teacher's brief outline of the work of the U. S. Weather Bureau a committee was appointed to report on the work in detail. Before the committee began its research the teacher and the class outlined probable sources of information. At the next discussion period the committee reported that the United States Weather Bureau was located in Washington, D. C., and was a part of the Federal government's Department of Agriculture.

QUESTION. Why do we have a Department of Agriculture?

ANSWER. Because most of its work is to help farmers and people who handle crops. They get reports from all over the United States about the weather. They take readings of barometers. They notice the wind. They have observation boats in the ocean. They make real records two or three times a day. They broadcast daily weather reports to farmers, aviators, and shippers all over the United States.

ETHEL. Somewhere it said we could write to San Francisco and get a daily weather map for 20¢ a month. Let's bring some money and subscribe for it.

QUESTION. How long shall we subscribe for?

MARILYN. It's the middle of January now. How long until school's out?

JOHN. It's five months. They would be \$1.00, and 5¢ times 26 of us is \$1.30. That's more than we need.

TEACHER. You bring your nickels and I will give you my check for the amount you need, because everyone may not be able to contribute.

QUESTION. Who'll write the letter?

DAVID. Ethel had the idea; let her do it.

In response to Ethel's letter the class received some excellent material, a pamphlet on weather phenomena and forecasting, one on the Weather Bureau, daily weather maps, and a large chart of cloud-formation pictures. The latter was immediately displayed on an easel. The class was appreciative of the promptness with which their letter was answered and of the services rendered. A feeling of familiarity with government agencies became more marked as correspondence increased.

In March the room secretary copied a composite letter ordering the daily United States map.

In April the class decided that they would like to inspect some of the climate charts listed in the publications of the Weather Bureau, and they wrote for them. The charts were studied with more interest by the fifth grade than by the fourth.

Magnolia School
Riverside, California
January 10, 1937

Director, United States Weather Bureau
San Francisco, California

Dear Sir:

Our room is studying about weather. We are enclosing a check for \$1.00. Please send us the daily weather map for 5 months.

Yours truly,
ETHEL G.
Room 12

Ethel's Letter to the United States Weather Bureau

(2) Construction of Charts. As soon as the meteorologists began taking daily readings of the installed instruments and making weather forecasts, the need of a form for recording the readings became apparent. A class discussion resulted in a statement of the information needed on the chart:

Make a place for the date.

Name the chart.

Put a place where the meteorologists who took the readings can sign it.

Mark off for five days, because we are in school only Monday to Friday.

Make separate charts for the thermometer and the barometer readings.

Don't forget that there are two thermometers, one inside and one outside.

And don't forget that we read them three times every day: 9 A.M., 12, and

"Mrs. Lunt, what is 12, A.M. or P.M.?"

(The teacher very briefly explained the use of the terms *meridian*, *ante*, and *post*.)

"The barometer is an aneroid. The mercury one isn't made yet, so don't put it on the chart."

"Put a place on the barometer chart for wind, too."

Magnolia School
Riverside, California
March 2, 1937

United States Weather Bureau
Washington, D.C.

Dear Sirs:

We should like to have you send us the daily weather map from Washington. It would please us very much to have it sent to us. We are studying weather and should like to keep track of what it is all over the United States. We have built a weather station in our room, and we are very much interested in the weather.

Sincerely yours,
Room 12

P. S. We are enclosing \$1.20 for the weather map for four months.

Room Secretary's Letter to the Weather Bureau

With the outline before them, each member of the class designed a form for recording thermometer and barometer readings.

The teacher pinned up the completed forms and allowed the class to inspect and evaluate them. The first forms were rejected because of untidiness, illegibility, and lack of attention to standards. The teacher awaited the outcome of this rejection with some trepidation, but the class was not discouraged. Accordingly, the outline was left on the blackboard, and the following day a second attempt was made by the children. Their gratification was at least equal to the teacher's when, after only thirty minutes of effort, inspection showed a large percentage of satisfactory forms. Selection this time was diffi-

cult, with the class finally voting for the barometer and temperature charts shown. (See pages 101 and 102.)

(3) Causes of Climate. The reading and research done in connection with the Earhart flight prompted the question, "What kinds of climate are there?"

The discussion period was devoted to this question. The children thought of their own climate experiences and evolved six major climate characteriza-

Magnolia School
Riverside, California
April 26, 1937

Chief, United States Weather Bureau
Washington, D. C.

Dear Sir:

Our room in the above school is making an intensive study of weather and climate. We are already receiving the daily weather map from Washington and San Francisco.

We are enclosing a check for 75¢ for which please send us the collection of 15 climatic charts for the United States.

If it is possible, we would also appreciate a copy of a weather report as it is sent in code. We will make good use of the materials.

Our meteorologists forecast the weather daily, and in five weeks or more have made only one serious mistake.

Yours very truly,
ETHEL G.
Room 12

Ethel's Second Letter to the Weather Bureau

tions: hot-dry, cold-dry, hot-wet, cold-wet, moderate-wet, and moderate-dry. The class was not too familiar with the terms *torrid*, *temperate*, and *frigid*. The six types of climate were outlined on the board.

The research period for the next few days was devoted to further investigation of the subject.

Most of the reading references for this phase of the research activities of the class were found in the *World Book* and in the several different geography books in the room and in the school library.

Marilyn M.'s question, "What makes climate?" formed the basis for intensive study. A number of two-minute reports were made, followed by class discussion. Various climatic zones were considered, and classification of types were made.

A study of zones with regard to the movement of the heat equator was undertaken, and John's map of ocean currents, which displayed the Tropic of Cancer and the Tropic of Capricorn, as well as the equator and the two circles, was much used.

TEMPERATURE CHART

Thermometer Readings

Date: _____

	9 A.M. In Out	12 M. In Out	3 P.M. In Out	9 A.M. In Out	12 M. In Out	3 P.M. In Out
MON.						
TUES.						
WED.						
THURS.						
FRI.						

Signed: _____

Betty B. reported that the position of land with regard to the ocean or other large bodies of water influences its climate. If the land is close to a large body of water, its climate is more even.

TOM. Why is that?

DAVID. Because water takes up and gives off heat more slowly than land. Isn't that right?

TEACHER. Yes.

Marilyn M. reported that altitude makes a big difference in climate and that the higher one rises into the air, the cooler it gets. Lima, Peru, although

BAROMETER READING

(Aneroid)

Week of _____, 19____

	9 A.M.	12 M.	3 P.M.	Wind
MON.				
TUES.				
WED.				
THURS.				
FRI.				

Signed: _____

in the equatorial region, is very cool, partly because of its nearness to the sea, but mostly because of its elevation. At the foot of the mountains in the tropics the temperature can be very hot. About 6000 feet up it is like the temperate climate, and on top it is always very cold. "You know," she reminded, "that high mountains always have snow on them."

JOHN. I read that temperature drops one degree for every 300 feet you rise. How high is your cabin, Mrs. Lunt?

TEACHER. 6300 feet.

JOHN. Let's figure the difference between here and there.

(This was done on the spot. Bobby looked up the elevation of Riverside. Vincent took the temperature from the outside thermometer. John put the problem on the board.)

6300 ft. Cabin

800 ft. Riverside

5500 ft. Difference, divided by 300, equals $18\frac{1}{3}$

JOHN. Because $\frac{1}{3}$ is less than $\frac{1}{2}$, let's use 18.

Outdoor thermometer reading

79°
-18°
61°

VINCENT. Then it should be about 61° up there now. How could we ever find out if it really is?

TEACHER. That is the reason for taking records in two places at exactly the same time on the same date.

VINCENT. Oh, sure, then when you get them both together you could tell.

(A concrete example of this fact was presented to the group during the excursion to San Dimas Canyon.)

ETHEL. I tried to understand how latitude affects climate but I don't think I do very well. Anyhow, that is the effect on climate in lands that lie at different distances from the equator. The closer you are to the equator, the hotter it is; then as you get farther away it is more temperate, like California; then up at the poles it is very cold. The *World Book* said that if all land was perfectly flat, the lands in the same latitude would have the same temperature, but the mountains and distance from the ocean make lots of difference.

JOHN. When we made our map of ocean currents we read about prevailing winds. They influence climate by blowing moisture from the sea to the land. The winds also move over hot lands and help to cool them, and blow warm air over cold lands and warm them. Some parts in the Arctic Circle never freeze over because of warm ocean currents flowing in. A town in Alaska—

DEON. Sitka?

JOHN. Yes, Sitka, Alaska, has winters no colder than Philadelphia because of warm air currents.

DEON (going to the terrascope). The *World Book* said that the way this axis is tipped was important to climate. Along the equator it makes lots of rain. In our zone it makes summer and winter. At the North Pole and the South Pole it makes six months of day and six months of night following each other. You can see how it works in the Temperate Zone and the Frigid Zone, but this [terrascope] doesn't show the rain part very well.

JOE. Rainfall is important, too. People can't live where there is too much or too little. The temperate climate with rainfall from about 20 to 40 inches every year is best for people to live in. The sun is really the most important thing of all, though. We couldn't live without heat from the sun. The sun warms the ground and the ground warms the air. If it gets too hot and there is lots of rain, it's a jungle and nobody can live there. The best climate is like California's.

Southern California's climate was satisfyingly classified as semi-tropical.

(4) Experiments. The City Schools Library loaned the class a large terrascope which was of great aid in demonstrating certain solar phenomena. The turning of a crank on this instrument causes the earth to rotate on a correctly tipped axis of $23\frac{1}{2}^{\circ}$ and at the same time to revolve about a lighted electric

bulb (representing the sun) on an orbit marked off in days, months, equinoxes, etc.

The class used a ruler to determine the slant of the sun's rays at different seasons.

One day Ethel reported a discovery to the class. She held a flashlight at the vertical angle on a given spot calling attention to the concentrated, bright spot of light. Then, shifting the light to an oblique angle, the class observed the lessened intensity of the light spread over a large area.

Tests were later made to compare the intensity of the sun's rays through a burning glass held directly toward the sun and at an angle. The comparison between the intensity of the sun's rays when the heat equator was in the Northern Hemisphere and when it was in the Southern Hemisphere had thus been graphically demonstrated, and the causes and effects of changing seasons were more clearly understood.

Air currents in the room were tested with tissue paper and feathers.

During research on air currents the subject of the composition of air was encountered. Simple experiments were made to demonstrate consumption of oxygen by placing a jar over a lighted candle.

The replacement of consumed oxygen by placing the lighted candle in water, then covering with a jar and observing the water drawn up into the jar, was also demonstrated.

The physiology and hygiene of the respiratory system was discussed in a period following these experiments.

One of the boys reported that he had read that there were three states of matter. He asked the class to guess what they might be. The guesses at first were rather hazy. He hinted by asking what forms water could be found in. Conclusions reached were: (1) liquid, (2) solid, (3) gaseous.

Bobby S. brought his electric furnace to school and demonstrated the melting point of lead, showing two forms of lead, solid and liquid.

The teacher brought some ice to the classroom and, by placing it in a pan over the sterno stove, the class was able to observe all three forms of water—solid, then liquid, then vapor.

Ethel asked if the class could see the comparison between the evaporation of water into vapor at the experiment table and the formation of clouds by evaporation of water from the ocean.

(5) Conferences and Interviews. The first interview held in connection with the development of this unit was by telephone. Betty K. volunteered to locate the local official weather station. Since Riverside was listed on the state map and the weather forecast and temperature appeared in the daily paper, she first called *The Riverside Daily Press* and *The Enterprise*. Betty was advised that the local report was telephoned to them by Mrs. H—— on Victoria Avenue. Mrs. H—— was then called. She verified the informa-

iron and told Betty that she read the temperatures and reported them daily to San Francisco. Since she did not extend an invitation to visit her, Betty hesitated to ask the favor. The class was content to let the matter rest with Betty's report.

Periodical conferences were held with the principal, who gave assistance to the people doing research work in the library adjoining her office.

Several conferences were held with the meteorologists on the excursion to San Dimas Canyon.

The physics instructor at the junior college was interviewed regarding the making of a mercury barometer.

These conferences and interviews, stimulated by the desire to obtain accurate information, helped the children to overcome self-consciousness in conversation with adults. They awakened the group to the necessity for formulating well-organized and clearly expressed questions.

Other Learning Activities. (1) Scrapbooks. Near the end of the term the class discussed the problem of the disposal of the great amount of material which had accumulated as the unit developed. One of the boys, whose hobby was scrapbooks, suggested that each member make a scrapbook and put in it all the things he wished to save. A definite plan of construction was mapped out as follows:

- Pages:** Gray bogus paper 10¼" by 13" to accommodate 9" by 12" construction paper.
- Covers:** 10½" by 13¼" cardboard covered with Manila wrapping paper and lined. The wrapping paper, with crayola design, crumpled in water and painted with water colors in harmonizing color.
- Lettering:** Cut-out letters, S C R A P B O O K, repeating color scheme of the lining.
- Pages:** Reinforced with gummed stickers at holes.
- Binding:** Books tied with harmonizing cotton warp.

Some of the children carved wooden ends for the binding ties. Others strung large kindergarten beads on the ends.

Among the materials carefully mounted in the scrapbooks were the following:

- Original art work
- Copies of original illustrated manuscripts of songs
- Original poems and stories
- Copies of the U. S. and state weather maps
- Other personal materials which had been accumulated

The finished books were taken to the principal for inspection. The children were greatly pleased when she autographed them. As a result of this, visiting supervisors and teachers in the building who had shown an interest in the unit were prevailed upon to autograph the books.

The class members experienced real satisfaction in taking home creditable examples of their handwork.

(2) Demonstration Showing Effect of Climate on Home Construction. One day Joe suggested, "Let's make different kinds of houses to go in different climates and draw pictures of the scenery."

MARILYN. How?

BOBBY H. Like these (showing cardboard models of houses which had been brought in previously). We can make our own patterns.

TEACHER. What will be some of the chief differences in your houses?

This question brought forth the following comments:

"If you live where there's lots of snow, the roof has to be awfully steep."

"Sure, and down at Palm Springs on the desert your roof is flat."

"And in the afternoon people sit out there."

"We couldn't show air-conditioning could we? But we could tell about it."

"Desert houses need thick walls to keep out the heat."

"So do houses where it gets cold, to keep out the cold."

"Yes, but houses where it's hot are made of thick hollow tile."

"Some houses are low and squatty, others are tall and steep."

"Windows in cold climates have shutters on them."

An infinite variety of dwellings suitable to the six types of climate were constructed. Paper dolls (the joy of the fourth-grade and fifth-grade girls) were suitably dressed and added to the ensemble. Two or three art periods were spent developing pictures for backgrounds. Among those produced were scenes of tropical jungles, arctic wastes, desert expanses, forests, grassy plains, and swamps.

(3) Rainfall Studies. During a discussion period the class had decided that rainfall was one of the essentials to life. John and Deon drew a large map of the world showing the wind and ocean currents. From this map they demonstrated some of the factors influencing rainfall. They pointed out certain startling facts about the rainfall along the southern slopes of the Himalayas in India. Here they found that the warm winds from the Indian Ocean drop their heavy moisture when striking the cool mountain slopes, and that the amount of rainfall per year is from 200 to 600 inches.

Marilyn M. produced a map of California and compared these figures with those for Riverside, the desert regions, the Great Valley, and Northern California.

As the group became more familiar with the factors causing the phenomenon of rain, four boys asked if they could make a rainfall or climate map. They covered a low library table, about two feet wide and seven feet long, with Manila paper. On this were drawn two large hypothetical bodies of land; the balance was to represent water. Some cardboard strips were folded into mountains. Small groups gathered about the table. They would engage in discussion such as the following:

"Let's play the equator is here. This water is warm. The wind blows across it. These mountains are about 10,000 or 11,000 feet high. Where would be the best place to live?"

"What could you grow there?"

"I wouldn't live on the other side of those mountains. It would be just like the Mojave Desert."

"It's better to live where it rains often, because rain washes lots of dirt and things out of the air."

"If you don't have plenty of rain, you have to irrigate, like they do in the Coachella Valley."

"And the Imperial Valley, too."

MEASURING OUTCOMES

In order to better gauge the extent to which the children had developed along the lines of the aims of the unit on weather, the following test was devised to measure their understandings of the various factors involved, including principles and subject matter.

Part I

Directions. Study the map. (See page 108.) Then mark a cross (+) in the correct box in the chart to show the kind of winter, the amount of rainfall, the climatic zone, and the kind of summer that each of the five places marked with Roman numerals would have. You will mark 20 crosses.

Part II

Section A. The Effect of Ocean and Wind Currents on Climate of Adjacent Lands

Directions. Put the letter of the answer which makes the sentence true in the parenthesis at the right.

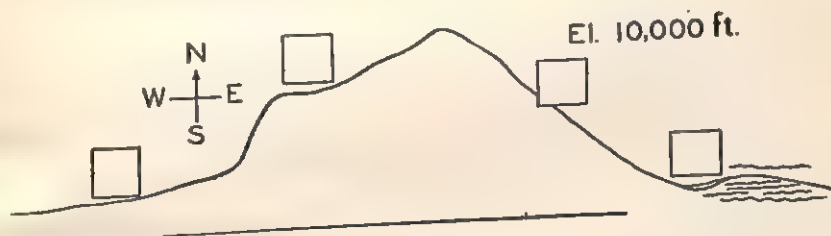
1. A wind blowing across a warm ocean current makes the adjacent land

(a) moist.	(c) cold.	()
(b) dry.		

2. A warm ocean current makes adjacent land
 - (a) frigid.
 - (b) dry.
 - (c) temperate.
 ()
3. Wind blowing across a warm current and striking high mountains causes
 - (a) little rainfall.
 - (b) heavy rainfall.
 - (c) no precipitation.
 ()
4. A cold ocean current makes adjacent lands
 - (a) cold in winter.
 - (b) warm in summer.
 - (c) dry in summer.
 ()
5. The southwest monsoon causes
 - (a) hot dry regions.
 - (b) rainfall in winter.
 - (c) rainfall in summer.
 ()
6. The chinook wind is
 - (a) dry and descending.
 - (b) wet and descending.
 - (c) wet and rising.
 ()

Section B. Effect of Mountain Systems and Altitude on Climate and Precipitation

Directions. On the accompanying diagram place the correct number (1, 2, 3, or 4) in each square.



The wind is from the east.

- 1 is hot, dry desert.
- 2 is temperate with moderate rainfall.
- 3 is cool with heavy rainfall.
- 4 is a cool, dry, grassy plateau.

Section C

Directions. Some of the following statements are true and some are false. Draw a circle around the number of each statement which is true.

1. Large bodies of water tend to make adjacent lands temperate.

2. Moisture is given off by lakes, oceans, and rivers.
3. All lands adjoining large bodies of water tend to be hot.
4. Water absorbs the sun's rays.
5. Large bodies of water radiate heat slowly.

Part III

Directions. After each statement are four possible answers. Put the letter of the best answer in the parenthesis at the right.

1. Air is a mixture of oxygen and
(a) carbon. (b) mercury. (c) helium. (d) nitrogen. ()
2. Warm air tends to
(a) contract. (b) sink. (c) rise. (d) remain stationary. ()
3. At sea level the normal air pressure registered by the barometer is
(a) 30.0. (b) 27.2. (c) 29.1. (d) 28.1. ()
4. In Riverside the normal air pressure registered by the barometer is
(a) 27.3. (b) 29.3. (c) 30.1. (d) 28.5. ()
5. Air pressure varies because of
(a) wind. (b) latitude. (c) the sun. (d) altitude. ()
6. The air blanket extends out from the earth
(a) a few feet. (c) at least 200 miles.
(b) about 5 miles. (d) 10 miles. ()
7. The barometer is an instrument for recording
(a) atmospheric pressure. (c) wind velocity.
(b) temperature. (d) humidity. ()
8. When the mercury in the barometer falls rapidly, it means
(a) clear weather. (c) a storm is approaching.
(b) strong winds. (d) very dry weather. ()
9. Isobars on a weather map record
(a) velocity. (b) humidity. (c) air pressure. (d) heat. ()
10. Isotherms on a weather map indicate areas of the same
(a) altitude. (c) wind direction.
(b) temperature. (d) air currents. ()
11. Mercury is used in thermometers because it is sensitive to changes
in
(a) weather. (b) wind. (c) temperature. (d) altitude. ()
12. The anemometer records
(a) wind velocity. (c) ocean temperature.
(b) soil temperature. (d) air pressure. ()
13. The belts of calms of Cancer and Capricorn are regions of
(a) cyclones. (c) rising air currents.
(b) descending air currents. (d) the trade winds. ()

14. The equatorial calms are belts of

(a) hurricanes.	(c) rising air currents.
(b) chinooks.	(d) descending air currents. ()
15. The section between the Tropic of Cancer and the equator lies in the

(a) Frigid Zone.	(c) South Temperate Zone.
(b) Torrid Zone.	(d) North Temperate Zone. ()
16. Natives of the region between the equator and the Tropic of Capricorn wear

(a) furs.	(c) very little clothing.
(b) woolen clothing.	(d) heavy clothing. ()
17. In the Frigid Zones the people have contributed

(a) much to science.	(c) much culture.
(b) many beautiful buildings.	(d) practically no culture. ()
18. The climate of an area is determined from records of weather for

(a) about 3 months.	(c) 50 years.
(b) at least 10 years.	(d) 1 year. ()
19. Clouds are formed by

(a) water vapor rising and condensing.	(c) heat.
(b) winds.	(d) the sun. ()
20. Cirrus clouds are formed at a height of about

(a) 1 mile.	(c) the horizon.
(b) 5 to 10 miles.	(d) 20 miles. ()
21. Cumulus clouds are

(a) layers.	(c) heaped-up masses.
(b) ringlets.	(d) curtainlike. ()
22. Nimbus clouds mean

(a) wind.	(b) snow.	(c) clearing.	(d) rain. ()
-----------	-----------	---------------	---------------
23. Stratus clouds are

(a) curtainlike.	(c) ringlets.
(b) in layers.	(d) heaped-up masses. ()
24. The cloud forms received their names from

(a) the English.	(c) the Germans.
(b) the Romans.	(d) the Greeks. ()
25. Dew is formed by vapor

(a) falling.	(c) cooling and condensing near the earth.
(b) heat.	(d) blown by winds. ()
26. Frost is a form of

(a) snow.	(c) fog.
(b) dew.	(d) rain. ()

27. Evaporation means
 (a) water changing to vapor. (c) condensation.
 (b) saturation. (d) dew point. ()
28. Humidity refers to
 (a) air temperature. (c) air pressure.
 (b) amount of moisture in air. (d) wind speed. ()
29. Wind velocity on weather maps is indicated by
 (a) barbs. (c) circles.
 (b) arrows. (d) bars. ()
30. Wind direction on weather maps is shown by
 (a) circles. (c) barbs.
 (b) dotted lines. (d) a line meeting a circle. ()
31. The axis of the earth is
 (a) vertical. (c) tipped at an angle of $23\frac{1}{2}^{\circ}$
 (b) horizontal. (d) at an angle of 50° . ()
32. The Temperate Zones of the earth have
 (a) four seasons. (c) only winter and summer.
 (b) all winter. (d) a wet and a dry season. ()
33. The greatest number of people live
 (a) in the Frigid Zones. (c) at the equator.
 (b) in the Torrid Zones. (d) in the Temperate Zones. ()
34. The earth depends entirely on the sun for
 (a) heat and light. (b) wind. (c) air. (d) water. ()
35. A thermometer is an instrument used to measure
 (a) air pressure. (c) air direction.
 (b) wind speed. (d) degrees of heat and cold. ()
36. The Weather Bureau is attached to the Department of
 (a) Commerce. (b) War. (c) Agriculture. (d) Interior. ()
37. United States weather reports are based on data obtained from
 (a) one locality. (c) Chicago and San Francisco.
 (b) hundreds of places. (d) the Eastern States. ()
38. Frost warnings are of great value to
 (a) the oil industry. (c) market-gardening industries.
 (b) miners. (d) dairymen. ()
39. Weather forecasts are used extensively by
 (a) transportation companies. (c) city engineers.
 (b) firemen. (d) policemen. ()

Part IV

Directions. Column A contains words with which you should be familiar. Read the definitions in Column B; then put the number of the correct definition in each parenthesis at the left of Column A.

Column A	Column B
() degree	1. an instrument for measuring altitude
() thermometer	2. a unit
() temperature	3. a public department
() velocity	4. predict
() pressure	5. the general atmospheric condition
() wind	6. a current of air
() air	7. condition of heat and cold
() forecast	8. moisture
() bureau	9. knowledge gained by exact observation
() weather	10. an instrument for measuring the force of the wind
() climate	11. the phenomena of weather
() code	12. heat
() humidity	13. observation
() anemometer	14. rapid motion
() hygrometer	15. an instrument for determining the moisture of the air
() aneroid barometer	16. gaseous substance composed of oxygen and nitrogen
() mercury barometer	17. an instrument employing a fluid for measuring atmospheric pressure
() science	18. an instrument for measuring atmospheric pressure not employing a fluid
	19. weight
	20. average weather of a region
	21. a system of signals
	22. an instrument for measuring heat and cold

Part V

Directions. The following statements refer to the causes of seasons on the earth. Some are true, others false. Draw a circle around the number of each statement which is true.

1. When the heat equator is north of the true equator, it is winter in the Southern Hemisphere.
2. When the heat equator moves south, it is fall in the Northern Hemisphere.
3. When the heat equator is at the true equator, we have the period of equal days and nights.
4. When the heat equator is north of the true equator, it is summer in the Southern Hemisphere.

5. When the heat equator moves north, it is spring in the Southern Hemisphere.
6. When the heat equator is south of the true equator, Californians experience long days and short nights.

Part VI

Directions. Following the description of a region are a number of statements regarding living in this region. Some are true and some are false. Draw a circle around the number of each true statement.

Description. This is a region of cool summers, having a light rainfall during the summer. Its altitude is about 5000 feet above sea level. The winter is very cold, with heavy precipitation (rain and snow). Prevailing westerly winds blow in all seasons. The soil is heavy clay, which is lying on a mountain slope.

1. Most houses in this region have flat roofs.
2. The people living here need warm clothing.
3. The houses in this climate should have weather-tight walls and steep roofs.
4. Houses here should be cooled by artificial cooling systems.
5. The people need foods containing much fat and starch.
6. Produce growers and shippers must provide frost protection.
7. Refrigeration is needed for perishable freight passing through this region in winter.
8. Heaters and radiator antifreeze solutions would be found in most automobiles in the winter.
9. People who live in this region must be prepared for sudden temperature changes.
10. Growers must provide an irrigation system.
11. This kind of climate tends to make the people very energetic.
12. Measures to check soil erosion would probably be necessary.

Part VII

Spelling Vocabulary

agricultural	barometer	bureau
Aldebaran	beacon	
altitude	Betelgeuse	Capella
anemometer	Big Dipper	carbon
aneroid	blue	centigrade
anthropology	breakers	cirrus
aviation	bulletin	climate

clouds	liquid	sandy
cloudy	Little Dipper	saturate
code	lysimeter	scale
condensation		science
condense	magnitude	sea
constellation	Mars	seasons
cool	measure	shore
costume	mercury	signal
cumulus	message	Sirius
	meteorologist	snow
	meter	soil
data	motion	solid
degree	mountains	stars
department	museum	storm
dew point		stratus
dioxide	Neptune	
	newspaper	Taurus
electricity	nimbus	telegraphic
erosion	nitrogen	temperature
evaporate		thermometer
	ocean	thunder
Fahrenheit	oceanography	tides
flash	Orion	torrid
fog	oxygen	
forecast		Uranus
freezing	Pegasus	Ursa Major
frigid	Pisces	Ursa Minor
	Pleiades	
galaxy	Pluto	vapor
gaseous	Pollux	velocity
geology	pressure	Venus
golden	project	
gray		Washington, D. C.
	radio	waterspout
hail	rain	waves
humidity	reading	weather
hygrometer	record	whirlpool
	Rigel	whitecap
instrument	ripples	
isobar	roar	zodiac
isotherm		zone
	sands	
lightning		

Part VIII

Directions. State briefly two important ways in which the Weather Bureau serves each of the following:

1. Orange growers
 - (a)
 - (b)
2. Aviators
 - (a)
 - (b)
3. Forest rangers
 - (a)
 - (b)
4. Ships at sea
 - (a)
 - (b)
5. Lettuce and melon growers
 - (a)
 - (b)

This test was constructed with the idea of showing the extent to which the children had developed an understanding of each of the various concepts involved and how well they understood the subject matter basic to the experiences of the unit. It was administered at the close of the unit, and the average number of correct responses was tabulated for each section of the test. The chart below shows the average per cent of correct responses for each

	AVERAGE PER CENT OF CORRECT RESPONSES	
	<i>Fourth Grade</i>	<i>Fifth Grade</i>
PART I		
PART II	64	81
<i>Section A</i>	60	70
<i>Section B</i>	63	85
<i>Section C</i>	87	89
PART III	61	72
PART IV	40	67
PART V	60	80
PART VI	64	70
PART VII	78	90

section of the test for the 10 fourth graders and the 15 fifth graders who took the test. Part VIII, which was subjective in nature, is not included.

The results of the test, together with opinions developed from the teacher's observations, seem to justify the following conclusions regarding the unit:

1. The unit was much better suited to the children of fifth-grade level than to those of fourth-grade level. This conclusion was substantiated by both the test results and the teacher's conclusions formed from her contact with the children during the development of the unit. The teacher's observations were further supported by the fact that of the various classes visiting the room from time to time, the degree of interest was much higher for the more mature groups, the fifth and sixth grades. The younger children evinced very little permanent interest in the work of Room 12.

2. The more mature children were much interested in the unit at all times, and developed a very satisfactory understanding of the concepts involved. They demonstrated an ability to use scientific equipment; to do research of both laboratory and library character; and to gain a functional grasp of the vocabulary of the unit.

3. The children made noticeable growth in their social efficiency—in their ability to work together in a democratic, effective manner.

4. The children progressed in their ability to express themselves through music, art, bodily rhythms, writing, and speaking.

5. The children developed an increased appreciation for the work of scientists, especially those connected with the United States Weather Bureau and with the state and Federal forest services.

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118 The Experience Unit

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PROBLEMS FOR STUDY AND DISCUSSION

1. On what grounds can you justify such activities as the rhythmic portrayal of "A Cycle of Rain" and the creative art, music, and writing which became an important part of the unit?
2. Criticize or defend the statement, "Elementary school children are capable of carrying on effective research activities."
3. Which of the following words or phrases best describes the role of the teacher in the unit described in this chapter: director, a leader of pupil activity, a passive member of the group? Give illustrations to support your selection.

4. Is teacher planning incompatible with the doctrine of child interest? Explain.
5. Considerable time was spent by the members of the class in construction activities. Defend or criticize the construction of the weather station and instruments, considering the contribution or lack of it to pupil development along the lines of the aims of education. Could the construction of the weather station have been omitted without serious loss to the development of the unit at an intermediate level? Explain.
6. What are the values of an objective test in evaluating pupil growth in this unit? What other evaluative procedures are in evidence?

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5 · Selecting and Planning an Experience Unit

SELECTING THE UNIT

Normally the activities of an experience unit consume from one-fourth to one-third of the school day, and the unit may run in length from several weeks to several months. Some units are of such broad scope that they may be continued throughout the year. Because of the importance of a unit in the total classroom curriculum, a great deal of thought should go into its selection. The teacher and the class should make sure that it has potentialities for varied and deep experiences within the maturation levels of the pupils concerned. Among the principles governing the selection of a unit are the following:

1. *The unit must have real purpose for the pupils of the class.* If one believes in the principle of pupil interest, it should be obvious that the children must have a definite part in the determination of the "center of interest" or major problem around which the activities of the unit develop. Many teachers and administrators have interpreted the so-called "doctrine of child interest" to mean that the activities of the class must grow out of the immediate, or the day-to-day, interests of the children. They have argued that any restrictions imposed upon the class by the teacher or a curriculum committee is a violation of this principle.

Actually there is no contradiction between the principle of pupil interest and that of teacher guidance. Neither is it necessarily a violation of this doctrine for a curriculum committee to lay out the general area of the curriculum for a grade level. We are more concerned, when selecting a unit, with the long-time and enduring interests of children than with their immediate and changing interests. For instance, we know that by far the great majority of children at all levels of the elementary school are interested in vehicles of transportation—ships, trains, trucks, and airplanes. They are interested in what these vehicles carry

and where they are going, with this interest expanding and deepening as the child grows older. They take a lively interest in the activities and equipment of the farm and the home. They are curious about the institutions of the community and the persons who furnish the many needed services of the community. They are interested in plants and animals, and in "what makes things tick," and, as their concepts of time and place mature, in peoples of other times and places.

Actually, the enduring interests of children at all levels of the elementary school are so numerous and their concern for understanding the physical and social environment is so real that the problem of selecting a unit becomes one of choosing from many possibilities rather than of searching for one that will appeal to them. Neither the laying out of areas within which a particular grade will operate nor the definite guidance of children by the teacher in the selection of a unit necessarily violates the principle of child interest, although such violation is all too common in practice. For instance, it is very doubtful if children of the sixth grade as a group are or will be vitally interested in a chronological, political study of a period of United States or European history. They can, however, become keenly interested in a well-guided experience unit on, "Westward Expansion" or "Living in Colonial America." Again, "The Geography of Mexico" can be most deadening when taught as a topic to a fifth grade, but "Living in Mexico" may become a series of thrilling experiences when developed by a skillful teacher as an experience unit. Science taught as a required textbook study can be quite dull, yet the children may become fascinated in conducting nutrition experiments with white rats or in finding out through observation and experimentation just what makes a jet plane fly.

The place of the unit in the total elementary school curriculum will be discussed more fully in Chapter 8. It need only be emphasized here that the development of guide lines by a curriculum committee and guidance by the teacher in the selection of units need not prevent the pupils of the class from having a good deal of choice in the selection of the particular units they are to develop. Within the limits of the curricular pattern for the grade, the pupils must have a real voice in this selection, not merely the opportunity to give consent to units already decided upon by the teacher.

2. *Geographic factors and current happenings affect the choice of units.* The location of the school and the happenings of the time have a definite bearing on pupil interest and should affect the selection of a unit. "Plant and Animal Life of Desert Regions" has real possibilities for a fifth-grade class in the Salt River Valley of Arizona, but the same unit might have no appeal for children in Boston or in New York. "Ani-

mal and Plant Life of the Sea" is a unit in which interest can be maintained much more easily in a seacoast village than in a town in Nevada or New Mexico.

Today a unit on "Living in the Orient" would have purpose for seventh and eighth graders, although it would have been less vital in the early thirties when very few Americans had been either to Japan or to Korea and when the affairs of the Orient occupied an interest secondary to that of the depression. An election year or a big fire in the community may motivate the class to choose such a unit as "Governing our Community and State" or "Protecting Life in the Community." The building of a new manufacturing or processing plant in the community may stimulate interest in "Resources of the Community" or a unit on the particular industry itself—"Coal and Iron," "Paper," or "Cattle Raising."

3. *The maturity level of children is an important factor in the selection of units.* The historical units "Early Pioneers" and "Westward Expansion" have little or no place as major units in the primary grades, but may arouse real interest a few years later. "The Market" can be an excellent unit at the second- or third-grade level, but the unit "Industries of South America" would fall quite flat, although the latter unit may have real purpose in the upper grades.

4. *The materials on hand or easily available affect the selection of a unit.* If the class and teacher are genuinely interested in a particular unit, the necessary learning materials can generally be obtained for it. However, the time required to get this material may make the selection of that unit impracticable. The experience-unit approach to teaching requires many more materials with which to work than does a textbook approach, and, consequently, the availability of materials for a particular unit should receive serious thought before the class gets too deeply involved in that unit. The interest in a unit soon dies if materials cannot be obtained to provide adequate information on the many things the children will want to know.

PREPLANNING OF THE UNIT

There is considerable argument over whether or not the teacher should preplan the experience unit. Those who argue against preplanning fear that the teacher who preplans will then proceed to direct the unit activities according to his plan rather than to act as a leader of a group doing its own planning. The writer recognizes the danger of this; he has seen "units" which were just about as formal and as teacher-dominated as the assignment-recitation type of teaching in the older school. A unit may be safely preplanned, however, by the teacher

who believes thoroughly in the value and necessity of pupil planning. The real purpose of teacher planning is to make sure that the teacher examines the full potentialities of the unit, has a clear concept of its aims, sees the full possibilities for rich pupil experiencing, and knows in advance that adequate materials for the learning activities are at hand. It is doubtful that the teacher can be an intelligent leader of a group if he does not know where the class is going and how it may get there. Purposely "keeping oneself in the dark" regarding the potentialities of the unit does not seem to the writer to be a defensible approach to teaching. Democratic leadership should not be blind leadership, nor is there any good reason why a teacher must become a dictator by reason of being well-informed on the unit under way.

PROBLEMS IN PREPLANNING

Regardless of the particular manner in which a teacher does his planning, there are certain problems he must think through. He must clarify his thinking regarding the aims of the unit so that he will have a reasonably clear understanding of the behavior patterns, or lines of growth, to which the activities of the unit can and should make real contribution. What are the understandings, the abilities, the attitudes and appreciations which should be increased or otherwise modified through the experiences of the unit? He needs to formulate a statement of aims in order that he can advise and guide more intelligently and so that he will have criteria for evaluating the activities and learnings of the unit.

His next problem is that of examining the unit for worth-while learning experiences. What major problems will arise? What field trips can be taken? How will each trip contribute to the unit aims? What possibilities exist for creative work? For construction? For graphic representations? These are the kinds of questions which should be given considerable thought by the teacher. Again, it should be emphasized that this thinking-through of the unit is not for the purpose of deciding just what will be done by the class, but, rather, of knowing what can be done. What will be done should be a matter of class decision as the children do their own planning under the guidance of the teacher.

A third major problem is that of obtaining adequate instructional materials. The writer has known numerous instances in which class interest, high at the beginning of a unit, soon developed a decided lag because pupils could not find answers to their questions. Children should, of course, make great efforts to obtain instructional materials themselves. If the teacher does too good a job of securing books, bulletins, films,

film-strips, and displays, there will be no need for pupils to exercise initiative and ingenuity; thus, they will be denied this avenue of learning. It is, however, equally unfortunate when a class cannot get under way because they have inadequate materials at hand. Teacher planning will prevent this situation. This preparation for the early phases of the unit still leaves much research and materials selection for the class to do.

A fourth problem is that of giving some thought to the ways in which the unit may develop. Not too much preplanning can or should be done on this problem, however, as the specific things which will be done and the sequence of their doing should be a matter of class planning. This problem will be discussed in more detail later in the chapter, as will the other major problems of unit planning.

A fifth problem which should receive thought at the beginning of a unit, and which will, of course, be a continuing problem, is that of evaluating the activities of the unit and the growth of the children. To what extent have the activities of the unit contributed to desired pupil growths? Can paper and pencil tests be utilized to measure some of the growths? How can the more intangible outcomes—for instances, attitudes and appreciations—be evaluated? How can parents be informed of what their children have learned? These are some of the problems of evaluation to which the teacher should give thought, both prior to the beginning of the unit and throughout its development.

ILLUSTRATION OF PREPLANNING OF A UNIT

There is no single right way to plan a unit, nor is there one correct form for the plan. Rather, there are several ways of going about the planning and there are various forms which the plan may take. It is desirable, however, for a teacher to have some systematic manner of planning. Only in this way can he make sure that a careful rather than a haphazard job is being done. The writer prefers to have the plan follow the major problems as indicated in the foregoing discussion. Consequently, the illustrated plan, in which Miss Patterson is planning for a unit for the seventh grade, is organized around the following questions:

1. What are the desired outcomes (aims) of the unit?
2. What are the potentialities of the unit for worth-while learning activities—activities which will contribute to the desired outcomes?
3. What materials, including books, will be needed, and where may they be obtained?
4. How will the unit probably develop in the classroom?
5. How may the activities of the unit be evaluated?

It will be helpful for the inexperienced teacher to follow Miss Patterson as she preplans for a unit called "Industries of the Community" for her seventh-grade class. The school in which Miss Patterson teaches is located in a small industrial city. The school is quite modern in its educational philosophy and practice, and the children of the seventh grade are experienced in planning the many learning activities of the modern classroom. The unit to be planned is one of several suggested by the curriculum committee for the seventh grade and has been selected by the class after a discussion of the various units from which they can make their selection.

Clarifying the Aims of the Unit. The staff of the city school system has been engaged in a study of its curriculum for several years and has formulated and adopted a statement of the aims of education. Miss Patterson believes that all well-conceived units should make major contributions to these aims. Her problem, then, becomes that of examining the unit to determine those educational aims to which the unit can make major contributions. The aims of education thus become a guide to the aims of all units developed in the several classrooms of the school, including this particular unit. Miss Patterson studies over these aims carefully in order to develop a statement of aims for the unit "Industries of the Community." Following is a statement of the aims of education which act as a guide to her thinking:

DESIRED OUTCOMES OF EDUCATION (AIMS)¹

It is the function of education to aid as fully as possible in the development of individuals capable of effective participation in a democracy so that the greatest good will result for both society and themselves. Because of the nature of both society and the individual, education should foster in children the following patterns of conduct:

Attitudes and Appreciations

1. The disposition to apply the scientific method in one's thinking. The tendency to be open-minded, yet critical in thought and action.
2. The attitude of tolerance—willingness to give courteous consideration to the beliefs and ways of living of persons of different race, religion, political party, occupation, etc.
3. An attitude of respect for and loyalty to democratic ideals and institutions.

¹ A number of cities and states have developed statements of the aims of education similar to this statement, which is adapted from the Eugene, Oregon, statement of aims.

4. An attitude of constructive participation and co-operation in the activities of a democratic society.
5. A willingness to give up certain individual liberties when necessary for the good of society.
6. An attitude of respect for duly constituted authority.
7. A desire to rely upon orderly methods of effecting social changes.
8. An attitude of personal integrity and responsibility.
9. The attitude of directness—the tendency to attack all problems without prejudice or diversion.
10. An attitude of respect for the personality of others.
11. An appreciation of the beautiful in nature and in the fine and practical arts.
12. A desire to protect and conserve natural and human resources.
13. An appreciation of good workmanship in others and a desire to be a good workman in one's own field.
14. An appreciation of the work of leaders in worthy fields of human endeavor and of the contributions of the social heritage.
15. An appreciation of high standards of conduct, both in others and in oneself.
16. An appreciation of natural phenomena.
17. An appreciation of one's responsibilities in regard to the home, together with the desire for happy home relationships.
18. A wholesome attitude toward persons of the opposite sex.
19. An attitude of freedom from worry, fear, shame, feeling of inferiority, uncontrolled anger, etc.

Understandings

1. The interdependence of all forms of life.
2. The way in which all life is modified by its natural environment.
3. The necessity for adaptation to changing conditions.
4. How man has learned increasingly to control his natural environment.
5. The way in which science has transformed man's modes of living and thinking.
6. The relation of the social heritage to man's development.
7. That man's progress in the solution of his social problems has not kept pace with his progress in science and invention.
8. Those scientific, socioeconomic, and mathematical concepts necessary to successful life in a modern society.
9. The ideals of a democracy and the citizen's own responsibility in the affairs of government—local, state, and national.
10. Ways in which people all over the world are endeavoring to reorganize

their social, political, and economic institutions in order to promote the general welfare of their civilizations.

11. The necessity for a broad social consciousness.
12. The activities involved in modern business and industrial enterprises and the part they play in relation to the general welfare.
13. Factors essential in choosing and preparing for a vocation.
14. Family relationships and the place of the family and the home in modern society.
15. The practical aspects of mental, physical, and emotional health and growth.
16. The necessity for and values of wholesome recreation in normal living.
17. The importance and functions of religion in the lives of a people.
18. The necessity of conserving our national and human resources.
19. The relation of health to human betterment.
20. The individual's own abilities, interests, and probable limitations.
21. How the struggle for existence tends to keep a balance between the various forms of plant and animal life.

Essential Abilities

1. To read various types of materials easily and effectively.
2. To solve problems and to do reflective thinking.
3. To express oneself forcefully, clearly, and correctly in oral and written form.
4. To listen attentively and profitably.
5. To study effectively.
6. To use mathematical procedures in practical life situations.
7. To use profitably public service agencies, and institutions such as those of communication, transportation, education, agriculture, labor, etc.
8. To function as a discriminating consumer.
9. To maintain in a state of good repair such environmental materials as home furnishings, recreation equipment, tools, etc.
10. To maintain mental and physical health.
11. To conform to acceptable social standards.
12. To earn a living for oneself and dependents.
13. To express oneself creatively in worth-while activities.
14. To work and play with others in a co-operative, friendly, and effective manner.
15. To co-operate effectively in the affairs of a democratic society.
16. To recognize common things of the natural environment, and to make effective use of them where desired.

17. To act either as a leader or as an intelligent follower in appropriate circumstances.
18. To use one's muscular system effectively.

Most, if not all, of the items listed under "Attitudes and Appreciations" are lines of growth to which all units, as well as most of the nonunit activities of the curriculum, should contribute. These general patterns of behavior are of concern to the teacher at all times and in all learning situations. Miss Patterson must consider how the unit "Industries of the Community" can contribute to these lines of growth. She sees that there will be constant opportunities for research activities in finding answers to the many problems of the unit; and, if carefully guided, these experiences should increase the disposition of pupils to be more critical in their thought and to apply the scientific method to this research. Again, if there is a great deal of group planning and committee work under the leadership of the pupils themselves, and if there are field trips during which pupils come to accept responsibility for their own behavior and to recognize and accept restrictions of actions necessary for order and safety, these experiences will aid in the development of an attitude of respect for democratic ideals and a desire to function effectively as citizens of the school and community.

In the same manner, the activities of the unit should contribute to an increase of most of the abilities listed under the heading "Essential Abilities"; and there is no need of modifying the phraseology of the statements to correspond to the particular unit. Certainly there should be a great deal of reading for comprehension and much research to find instructional materials dealing with the many problems of the unit. Improvement in reading should be part of the unit plan, and attempts should be made to measure growth in the several skills making up this general ability. There should be numerous opportunities for formal and informal reporting, both individual and group. Definite guidance in the improvement of the ability of pupils to organize their thoughts and to express them correctly, concisely, and interestingly should be an integral part of the teaching and learning situations. Group work should contribute materially to the ability of children to plan co-operatively and to work together toward common goals. The activities of the unit should contribute materially to the development of creative ability in writing, in music, and in the arts and crafts. And so one could continue through the items listed as essential abilities.

A somewhat different problem is faced in working through the items labeled "Understandings." To be of greatest help in planning the possible activities of the unit, most of these should be restated in terms of the

unit itself. Not all items will be pertinent to each unit, and those which do apply need to be stated in a much more specific manner. Consequently, Miss Patterson spends several hours thinking through this section, developing more specific statements to act as a guide for the unit "Industries of the Community," and eliminating those items which do not seem to apply to the unit. The following is the statement which finally evolves:

Understandings—an increased understanding of:

1. How various groups within the community are dependent upon one another for services, raw and manufactured materials, and labor.
 - (a) One industry upon another for raw materials and manufactured goods.
 - (b) Town and city dwellers upon the farmer for food, and the farmer upon town and city persons for a market for his produce.
 - (c) The interdependence of management and labor in production.
 - (d) The interdependence of businessmen, professional men, and consumers.
2. The contributions of certain industries to national defense.
3. How industry in the community is affected by geographic factors and the availability of raw materials.
4. How industry and business have changed to keep pace with changing economy, scientific discoveries, and changing customs.
5. How persons in the community have learned to control the natural environment through conservation practices, improved transportation, and other methods.
6. How scientific advances have caused changes in industry, business, professional services, and institutions within the community.
7. The historical forces which have affected the institutions and resources of the community.
8. Scientific principles and facts as they are related to industry in the community.
9. Certain economic, social, and political problems as they relate to community resources. Among these are the following:
 - (a) The relationship of wages and farm prices to standards of living.
 - (b) Problems of housing and recreation and similar problems as they are affected by the growth of industrial areas.
 - (c) The less complex aspects of such economic concepts as the relation of supply to price, of technical training to wage levels, and of changing consumer demand to production.
10. How negotiations are conducted between labor and management in the settlement of wage and other problems.

11. How a community-minded industry may contribute to the general welfare.
12. Industrial processes and the scientific and mechanical principles involved.
13. The vocational possibilities and opportunities in the industries of the community and the preparation essential to success in one's chosen vocation.
14. One's own vocational interests and abilities.

To one who has not had considerable experience in modern classroom teaching, the foregoing list of "understandings" may seem entirely too difficult to constitute the aims of a unit for seventh graders. He should keep two facts in mind. First, through an experience approach to learning, the pupils have much more direct and intense experiences than under a lesson assignment, textbook-centered type of teaching; and these experiences are both more meaningful and more purposeful. Second, it is not expected that the pupils will develop a high degree of understanding of each of the concepts listed. They will grasp the simple ones, but they will make only a good beginning in understanding the more complex generalizations. It should be kept in mind that these same understandings, adapted to the particular unit under way, constitute part of the aims of many units, both prior to the seventh grade and following it; the activities of this unit, therefore, are neither the pupils' first nor last introduction to them. They are growing concepts which begin early in school and, it is hoped, will be subject to modification throughout life, both inside and outside the classroom.

Planning Learning Activities. The purpose of this second phase of unit planning is to make sure that the teacher has thought through the potentialities of the unit for learning activities which will contribute directly to the achievement of growth in the aims of the unit. Again, there are many ways in which this phase of planning can be done. It is important, however, that there be some systematic thinking about the possibilities rather than just a "muddling through" in a hit-and-miss fashion. Miss Patterson prefers to think through the possible experiences by *type of activity* in order to provide some system of thought. Consequently, she is interested in possible field trips which may be of real value; the major problems which will form the basis of research and of group discussion and reporting; the possibilities within the unit for creative expression in the arts, music, drama, rhythmic, and writing; the possibilities of bringing in resource persons from the community; and the question of whether or not the unit lends itself well to construction and other comparable types of activity. Several hours of thought and research, including a hurried survey of the community, result in the following addition to her plan:

SUGGESTED LEARNING ACTIVITIES

Field Trips²

1. Agriculture

(a) Stock raising and dairying

Brown's Dairy (dairy cattle), Lewis Farm (dairy cattle)
Lindley Farm (beef cattle), Alford Farm (beef cattle)
Jackson Farm (hogs), Mason Farm (hogs)
Jefferson Farm (chickens), Wilson Farm (chickens)
Bronson Farm (turkeys), Opekasit, Inc. (hatchery)

(b) General farming

Heitz Farm, George Anderson Farm, Wright Brothers Farm

(c) Conservation

Heitz Farm, Hildebrandt Farm, Stander Farm

2. Food Processing

General Mills, Inc. (grains), National Bakery, Frechtling Dairy, Hornung's Meat Packing, Stauble's Food Products Co.

3. Industrial Plants

ARMCO Steel Corporation, Champion Paper & Fiber Co., Mosler Safe Company, Fisher Body Division, General Motors Corporation, Aeronca Manufacturing Corporation, Bendix Aviation Corporation, Miami Cement Products, John M. Horn Lumber Co., American Cyanamid Company, Baldwin-Lima-Hamilton Corporation, Hamilton Die Cast Company, Beckett Paper Company, Sorg Paper Company, Miami Cabinet Division of Philip Carey Manufacturing Company, Fashion Frocks, Inc., Fisherman's Press, Cincinnati Gas and Electric Company, General Telephone Company of Ohio

4. Businesses Related to Industry of the Community

Kroger's Food Market, Farm Bureau Store, Opekasit, Inc., Sears Farm Store, Rockwell Tractor Sales, Shaeffer's Elevator

Major Problems for Research and Discussion³

1. In what ways and to what extent are the various groups within the community dependent upon one another? Consider the interdependence of industry and business for raw and manufactured goods, the interdependence of producer and consumer, and the interdependence of labor and management.
2. What are the more important contributions of the industries of the community to national defense?

² This is a suggestive list only, and could be greatly expanded if space permitted.

³ Note that in planning for major discussion and research problems Miss Patterson utilizes the section "Understandings" of her statement of aims as the guide to these problems.

132 *Selecting and Planning an Experience Unit*

3. In what ways are the industries of the community affected by geographical factors and by the availability of raw materials? Be specific in this.
4. How have scientific discoveries, changing customs, economic factors, conservation practices, and modes of transportation brought about changes in the industrial life of the community?
5. To what extent have the industries of the community been the results of historical happenings? Explain.
6. What are some of the scientific principles exemplified in industry? Consider the chemistry of paper making, the scientific knowledge applied to agriculture, the development of power and its application to industry, the science applied to food production, and the science of making steel.
7. How are the standards of living affected by the industries of the community? Consider the following:
 - (a) Relation of wages to standards of living.
 - (b) Relation of farm prices to standards of living in both city and country.
 - (c) Problems of city beautification and planning and their relation to industrial development.
 - (d) Relation of technical training of the worker to wages.
8. What are some of the major problems which arise in the relationship of labor and industrial management and how are these problems solved? Consider such problems as wages, plant safety, working hours, and conditions of employment and recreation.
9. What are the conditions within a community which lead to community improvement? How, and to what extent, may industry make the community a better place in which to live?
10. What work would you, as an individual, like to do to earn your living? How would you prepare yourself for this work? Are your abilities such that you could succeed in your selected field of vocational interest?

Reporting Activities

1. Informal reports on field trips taken by small groups and by individuals.
2. Reports by committees making intensive study of specific industries or specific problems of industry. Many of the problems listed under "Major Problems for Research and Discussion" may become topics for individual and committee reports. Among the possibilities are the following:
 - (a) The science of steel making.
 - (b) Soil conservation in agriculture.
 - (c) Scientific stock raising.
 - (d) How labor and management are learning to work together.
 - (e) The science of paper.

- (f) Running a business (any business directly related to industry).
 - (g) How industry helps a community.
 - (h) City planning and its relation to industry.
 - (i) Major industries of the region (emphasis on location and importance).
3. Talks by persons in the community who can make worth-while contributions to the study—industrial workers, persons in managerial or research positions, farmers, businessmen, county agricultural agents.

Construction and Graphic Activities

1. Making a model soil-conservation project.
2. Graphic presentation of the comparative values of industries of the community.
3. Graphic presentation of a process—for instance, the chemistry of paper making.
4. Graphic presentation of an industrial process—for instance, the making of a steel safe.
5. Actually making a finished product from raw materials—for instance, cloth, flour, or paper.

Creative Activities

1. Painting murals depicting a particular industry or industrial process.
2. Painting murals depicting an idea—for instance, earning a living in our community, erosion, or our industrial community.
3. Writing original poems or essays about industry.
4. Creative dramatization of industrial significance—for example, the dramatization of the perfection of a significant process or invention; dramatization of some important aspect of agriculture—for example, a farm meeting to discuss the utilization of commercial fertilizer to increase crop production.

Experimental Research

1. Development of plantings to test the effects of various fertilization programs.
2. Experimentation to learn the effects of plantings, terracing, etc., on soil conservation.

Obtaining Materials for the Unit. Miss Patterson's third problem is that of surveying the field to determine the availability of instructional

materials needed to carry out the learning activities of the unit. She prepares a statement of suggested problems of the unit for the school librarian and requests her help in finding what is available in the school library. She then spends considerable time in the city library to check available materials there. She studies the audio-visual catalog published by the state university to learn what films, slides, and recordings may be obtained from that source. She studies a pamphlet prepared by a city school-curriculum committee which has made a study of the educational resources of the community and has published a list of pamphlets, exhibits, models, films, and other instructional materials available from various agencies and industries of the community. A listing of "Free and Inexpensive Instructional Materials" prepared by the state department of education is a great help to her and will be utilized by the class in its search for materials, as will all the other sources used by the teacher.

The list of suggested instructional materials compiled by Miss Patterson is too long to be included here in its entirety. The abbreviated listing of source materials is, however, suggestive of the manner of teacher planning of materials:

BOOKS

- HATCHER, HARLAN, *The Buckeye Country*. H. C. Kinsey and Company, Inc., New York, 1940.
- IVEY, JOHN E., JR., BRELAND, WOODROW W., and DEMERATH, NICHOLAS J., *Community Resources*. John C. Winston Company, Philadelphia, 1951.
- Ohio Development and Publicity Commission, *Ohio, an Empire within an Empire*. Ohio Development and Publicity Commission, Columbus, 1950.
- SIEDEL, FRANK. *The Ohio Story*. The World Publishing Company, Cleveland, 1950.
- WRIGHT, ALFRED J., *Economic Geography of Ohio*. State of Ohio, Division of Geological Survey, Columbus, 1953.

PAMPHLETS, BULLETINS

Agriculture

- Chemistry and the Farmer*. E. I. Du Pont de Nemours & Company, Inc., Wilmington, Delaware, 1950.
- The Corn Plant of Today*. Pioneer Hi-Bred Corn Company, Des Moines, Iowa, 1950.

Our Land and Its Care. American Plant Food Council, Inc., Washington, D. C., 1951.

The Story of Cereal Grains. General Mills, Inc., Minneapolis, Minnesota, 1944.

Industry

American Railroads, Their Growth and Development. Association of American Railroads, Washington, D. C., 1950.

Plastics—The Story of an Industry. The Society of the Plastics Industry, Inc., New York, 1951.

The Story of Bituminous Coal. Bituminous Coal Institute, Washington, D. C., 1949.

FILMS, FILM-STRIPS, SLIDES

Agriculture

Conservation Is Everybody's Business. Popular Science Publishing Company, New York. Film-strip.

This Is Life. American Meat Institute, Modern Talking Picture Service, New York. Film.

Industry

Paper Comes to Life. The Champion Paper & Fiber Company, Hamilton, Ohio. Film.

Romance of Iron and Steel. Armco Steel Corporation, Middletown, Ohio. Film.

Sugar. U. S. A. Western Beet Sugar Producers, Inc., Modern Talking Picture Service, New York. Film.

MODELS, DISPLAYS, EXHIBITS

Armco Steel Corporation, Middletown, Ohio. Samples of stainless steel.

Natural Rubber Bureau, Washington, D. C. Sample kit of natural rubber.

Sorg Paper Company, Middletown, Ohio. Samples of paper products.

The Development of the Unit in the Classroom. Miss Patterson's fourth planning problem is that of the sequence of development of the unit activities. It is doubtful if anything is to be gained by trying to visualize the sequence of specific group activities, such as the time a particular field trip will be taken or the time at which certain reporting

or creative activities will be initiated. *The specific activities to be engaged in by the class as a whole and by groups and individuals within the class will be and should be a matter of class decision, as will be the sequence of these activities.* A unit, however, does tend to develop by closely related and overlapping phases, and these need consideration here.

In general, units tend to move through the following phases:

Introduction or orientation.

Problem clarification and problem setting.

Problem solving—research, excursions, discussions, etc.

Culmination—integration of learnings.

Over-all evaluation.

Whether or not there needs to be a planned introduction depends primarily upon the manner in which the unit has been or will be initiated. In the unit planned by Miss Patterson there will be little need for a planned introduction, for the children already have given considerable thought to the possibilities of the unit. This was done in the process of deciding which of the possible units they wished to develop for the year. If, however, Miss Patterson had decided that she was going to try to get the children interested in the unit "Industries of the Community," she would have had need for careful planning of ways and means of arousing this interest. She could have planned to take the children on one or two field trips to industrial plants in the hope that they would want to find out more about the industry of the community and its relation to community living. There are some excellent motion pictures which she could have obtained to show to the class. Or she might have planned to ask a representative of industry to come to the classroom to discuss some aspect of industry and, possibly, to use a film or some slides to illustrate his talk. Again, she might have capitalized upon some current happening in the community or nation to arouse interest and to motivate the class to further study. There are interesting stories of industry which she could have read to the group, stories which could be dramatized if the class were versed in creative dramatization.

Miss Patterson realizes that, even though the class itself has decided that "Industries of the Community" is to be the next unit, problems of motivation cannot be ignored. Several pupils wanted to select a different unit; and, while they have submitted without argument to the decision of the majority, they still may not be too happy about the selection. Then, too, she believes that some additional experiences are desirable before the group gets deeply involved in the attempt to clarify the major problems of the unit. She has already discussed this problem with the class and has suggested a field trip to a large manufacturing

plant as a means of getting the unit under way. The members of the class have considered various plants they might visit and have decided on a nearby paper-manufacturing plant. Miss Patterson has arranged with the management for the visit and has made reasonably sure that the field trip is set up so that the children will have time to do some looking around and to ask questions about things in which they may become especially interested at the time. She has spent some time in the plant so that she will be able to give intelligent guidance to the children both before they visit the plant and during the excursion.

The introduction will merge gradually with the problem-clarification phase of the unit. Miss Patterson hopes that through discussion the children will begin to think somewhat systematically about the major problems they want to solve and the things they want to know about industry and its relation to community living. The field trip, too, will have stimulated thinking along this line. Then she plans to suggest some readings about industry, and to have some good books and periodicals concerning it available on the reading table. More will be on hand in the library, where they will have been made easily accessible to the children. Possibly the children will suggest that the things they want to know about be written down by each child, or they may prefer to divide into committees to formulate suggested problems for investigation. A committee of children probably will be designated to collect all suggestions and to formulate a statement of problems for class consideration. This statement of problems can then be mimeographed so that each child may have a copy for himself for use as a guide to his thinking and study.

As the children are thinking about the things they want to know, they will begin planning ways and means of carrying out their investigations; consequently, the group will pass naturally into the planning stage, in which the major emphasis will be upon what they can do to learn the things they want to know. They will need to discuss class organization, daily and weekly schedules, possible field trips, construction and experimental projects, and ways and means of getting additional materials of instruction. From past experience with the group, Miss Patterson expects that committees will be organized to make intensive studies of particular problem areas, with all children doing some study in each area. Planning will continue throughout the unit and will become more specific in nature as the children come to grips with particular problems. The various committees will spend considerable time in planning their research and other activities as their studies develop. The class as a whole will need weekly, and sometimes daily, planning periods.

The planning phase of the unit will merge naturally into the "doing," or problem-solving, phase as planned activities get under way. There will be study and discussions by the class as a whole; field trips by individuals, by committees, and by the whole group; construction of projects, experiments; discussion of problems of interest by persons from industry brought to the class; creative dramatizations; library research; making of graphs and murals; and many other activities.

Culminating and Evaluating the Unit. How long shall the problem-solving phase of the unit continue before there is an attempt to bring together all the learnings and to make an over-all evaluation? Miss Patterson well knows that it is not possible to tell in advance just how long the unit can continue profitably. She believes, however, that she should make an estimate of the time it might last, being prepared to shorten or lengthen this estimate as the unit develops. The unit easily could consume the five months remaining in the school year, or it could end after eight or ten weeks. Miss Patterson is inclined to set approximately twelve weeks for the unit as a basis for guidance, but is not at all averse to a longer time if interest remains high.

There are numerous ways in which a unit of this type may be culminated. The children may want to develop a dramatization of the industry of the community, or they may like the idea of having an industrial fair. Since the last unit culminated in a creative dramatization, Miss Patterson hopes the children may be interested in the second possibility. She feels sure that the industries of the community would co-operate in such an undertaking. The preparation of the several exhibits would require an excellent working knowledge of the various industries and an integration of the learnings of the unit.

Evaluation will be going on throughout the unit. Activities will be evaluated as they progress, and ways and means of improving them will be considered and tried. Individual and committee reports will provide clues to the learnings of the children, as will completed projects of various kinds. In addition, Miss Patterson plans to give tests to the children at the beginning and at the end of the unit. The children know that tests are not for competitive grading purposes and, consequently, they enjoy them. The beginning test will bear the heading "What Do You Know about Industry in Our Community?" It will be an objective test and will be based upon "Major Problems for Research and Discussion," listed under the section of the unit plan entitled "Suggested Learning Activities." Miss Patterson may prepare a comparable test to be used at the end of the unit, or may use the beginning test again, to evaluate the growth of the children and the effectiveness of the instruction. If the children decide upon an industrial fair as a culminating

activity, they will be supplying an excellent means of informing parents about the learnings of the unit.

Miss Patterson knows that many of the things which she has listed in her plan will not be done and that many things will be done which are not in the plan. The children will think of most of the same things to do that Miss Patterson has considered; and their statement of problems will be quite similar to hers, couched though it is in seventh-grade language. They will also think of worth-while things to do which Miss Patterson has overlooked. Miss Patterson knows, however, that the time she spent in planning, in thinking carefully through the unit, is not wasted, for it has given her confidence and will make her a much more capable leader of the group than if she had done no preplanning. Her problem now is to remember not to force her thinking and planning upon the group but, rather, to become an integral part of a teacher-pupil planning team in which she will exercise intelligent guidance.

PROBLEMS FOR STUDY AND DISCUSSION

1. There is considerable disagreement as to the extent of preplanning desirable in the unit-of-work approach to teaching. What are the advantages and the disadvantages of this preplanning? How may some of the dangers be avoided?
2. What are the fundamental differences of approach in planning an experience unit and in planning a more conventional subject-matter type of unit or topic?
3. Does advance planning by the teacher necessarily preclude pupil participation in the planning? Explain.
4. Some educators argue that the pupils of a given group should have complete freedom in the selection of units of work for the year. Criticize or defend this point of view, thinking in terms of the whole school life of the child.
5. Miss X teaches a fifth-grade class in a small city system. She has a very complete syllabus worked out for each unit that is to be taught during the year. At the beginning of the unit she gives each student a copy of the syllabus. She instructs each child to follow the day-to-day directions carefully and to do each day's assignments on time. The syllabus is so worked out that each unit lasts four weeks, and each child knows exactly what is expected of him each day. Criticize or defend this procedure in the light of modern educational points of view.

6 · Guiding Unit Activities in the Classroom

The experience curriculum implies learning by and through varied activities, not through an outline of subject matter or of topics to be covered. That these activities seem to fall into rather natural categories is indicated by the common use of such expressions as "dramatic play," "construction," "creative music," and "excursions" in discussing the unit of work. It seems justifiable, therefore, to consider each type of activity separately, but it must be kept in mind that they are seldom, if ever, separate in the classroom. For instance, problems necessitating research grow out of construction, dramatic play, and other activities, while certain phases of creative art may well be a part of construction.

The particular classification of types of experiencing adopted for the purpose of this discussion has its weak points as well as its strong ones. This is true of any plan which attempts to segregate for discussion purposes things which in actual life are not so compartmentalized.

FIELD TRIPS (EXCURSIONS)

As teachers develop a greater realization of the importance of firsthand observation and direct experiencing in the learning process, the excursion assumes a leading role in the curriculum of the child. There are many values to be gained from excursions:

1. *Excursions bring about learning through experiencing.* Many young children in our cities have never seen a cow milked. While the motion picture and other visual aids may show exactly how this is done; learning from pictures cannot possibly compare with the experience of actually seeing a cow milked and tasting the warm, fresh milk. Many small children do not see the connection between the cold milk delivered to their homes each morning and the cow grazing peaceably in the pasture. One first-grade child, on tasting the warm milk which he had helped obtain from the cow, remarked, "I don't like this as well as the kind of milk we get at home."

2. *Excursions stimulate creative expression.* A visit to a sawmill during the development of a unit on lumber may stimulate considerable creative

expression. Such an excursion will form a background of experience essential to dramatic play and creative music, art, and literature, and under the stimulation of the teacher an urge to create may be developed.

3. *Excursions are essential to the success of many of the construction activities.* The pupils of a first-grade class engaged in a transportation unit may be having difficulty in building their trains. A prearranged visit to the railroad yards actually to see the different kinds of cars and to learn how and where the engine cab should be placed is a learning experience which cannot be duplicated inside the classroom. A class working on an irrigation unit, attempting to construct a replica of the irrigation system of the valley in which they live, will be greatly stimulated and aided in the work by a personal inspection of the dams and canals of the system.

4. *Excursions contribute to the development of basic social understandings.* How much better for a group of pupils reporting to the class on the work of the city council actually to visit the city council in session than to attempt to gain all the information from textbooks written in general terms. Such visits, in addition to enlightening the pupils on the work of these departments, give an experiential background which will make the texts and reference books much more understandable.

5. *The trip itself is an experience in social living.* Children will learn to conduct themselves properly on such trips only as they have the opportunity to make numerous excursions under conditions which lead to better understandings of socially acceptable conduct and which instill desires to act accordingly. If the pupils do not behave properly on an excursion, this indicates a need of more excursions, properly guided, so that desirable modes of behavior can be learned. It is most enlightening to observe a first-grade class on their first excursion of the year and then to accompany the same group several months later, after they have experienced several field trips under excellent guidance. One hardly recognizes the orderly, safety-conscious group, needing hardly a word of advice from the teacher, as the same class that "drove one nearly frantic" earlier in the year. Responsible social conduct is learned only by actual experience in situations requiring such conduct, and it cannot be learned prior to this experience. Failing to take field trips because of the conduct pattern of a class is an evasion of the issue, not a solution of the problem.

The field trip, as is the case with other activities, must be carefully planned in advance if it is to be successful and not result in adverse criticism from the community. The following suggestions are worth considering:

(a) The consent of a parent of each child who is to go on the excursion should be obtained in writing before a trip of any great distance or one which takes the child from school for any length of time. Many schools have for this purpose a printed form containing spaces for the child's name, the name of the place to which the class is going, a statement of the mode of transportation, the teacher's signature, and the parent's signature giving consent. Some forms of this nature have a brief explanatory paragraph setting forth the chief purposes of excursions.

(b) When the trip is to a private industry or to a public or private institution or department, it is absolutely imperative that the teacher make definite arrangements well in advance of the visit. Taking a whole class to the post office, to the fire department, or to a privately owned business establishment without making prior arrangements with those in charge is inexcusable. Such action not only is a breach of etiquette but will ultimately lead to unfavorable reaction against school excursions. Most public officials and private citizens are very willing to co-operate with the school in the education of the children of the community and will give their time freely and gladly if they are approached properly and not imposed upon unduly.

(c) The teacher should remember that the principal is responsible for the children of each class and that he should at all times know the whereabouts of the members of any group. The principal of the school should always be consulted before arrangements are made for any excursion that takes the children from the school grounds.

(d) Every field trip should have a purpose. The children should go to see definite things, and they should be prepared to observe intelligently and to ask questions about those things they especially want to understand. The amount of advance preparation for any excursion depends on numerous factors, such as the purpose of the trip, the complexity of the institution to be visited, and the background of the class. A poorly planned and relatively purposeless excursion is as valueless from an educational point of view as are many of the meaningless drills and memory exercises of the traditional school.

(e) If the excursion is to be a worth-while experience in social living, the members of the group must have an opportunity to exercise self-control and to feel their responsibility collectively, as well as individually, for the success of the undertaking. Control must be imposed by the group and responsibility accepted by the individuals of the group. Improper conduct should become a matter of group concern, not alone of teacher concern. Many infractions of acceptable behavior patterns may become real learning situations under wise teacher leadership. The field trip

presents an excellent opportunity for developing a sense of social responsibility on the part of the individual and the group.

(f) Difficult problems of transportation to places not within walking distance can usually be solved. Some school authorities have not yet recognized the importance of the excursion as an educational activity; consequently these do not finance transportation from school funds. The problem of liability and the fact that many districts do not own school busses complicate the matter. However, many schools are learning that parents are interested in the school program and in the welfare of their children to the extent of being willing to furnish reasonable transportation if they are protected in case of an accident. Many parents carry personal liability insurance and are so protected. It is possible, without excessive cost to the school district, to take out a blanket insurance policy protecting the drivers of cars engaged in school business. Such action on the part of the school board would go a long way toward solving the transportation problem for the longer excursions. Parents should not be called upon to such an extent, however, that this service becomes a burden.

CONSTRUCTION ACTIVITIES

While of utmost importance in the unit of work, probably no form of pupil activity has been so grossly misunderstood as construction, nor more often misused. This has resulted partially from lack of understanding of the basic philosophy on which this activity is based and partially from the fact that the activity has been judged by the product constructed rather than evaluated by the pupil growths resulting from the experiences. After all, the appearance of the Mexican home made in the fifth grade or of the crude truck made in the first grade is of little significance; of chief concern is what has happened to the individual or the group in the process.

Construction activities have several values which well justify the time they consume.

1. *Successful construction activities require careful planning on the part of the pupil and the class.* Whether it is a post office that is being built by a second-grade class or an observatory by a seventh-grade class, the children are learning to plan and to execute, and this ability can be developed only through actual experience.

2. *The construction activity places the children in a situation in which the success of the activity demands social control and co-operation.* Such a group situation requires those types of social conduct that are essential to successful living in a democratic community. For thirty

first-grade children, self-centered by nature, to learn to use six hammers and six saws unselfishly is an educational accomplishment as great as that of learning to read. For these children to learn to handle tools effectively and to be conscious of the safety and rights of others while hammers are flying is an achievement of the highest order, one that justifies the construction activity regardless of the appearance of the finished product.

3. *Construction provides an outlet for normal child activity.* The young child is by nature an active, curious organism. The school program should be in harmony with child nature, not opposed to it. The more formal program keeps the child in his seat most of the day doing fine work which, if too prolonged, is damaging to the child's eyes as well as to his nervous make-up. Construction stimulates the use of the larger muscles and provides learning situations of far greater value than the traditional "seat work," and without bad effects.

4. *Construction develops skill in the use of common tools.* For girls, especially, this is one of the few school situations wherein such experiences are gained.

5. *Construction stimulates investigation in real problem-solving situations.* The building and equipping of a school dairy requires much studying of books and pictures, as well as excursions to dairies to see how the cows are tied while they are being milked or how the silo is constructed. The building of a model sewage-disposal plant by a group of eighth-grade boys who are taking this as a special problem for study stimulates continuous research. Not only must they know *how* the plant is built, but they will want to know *why* it is so constructed. Problems of heating and lighting a colonial log cabin and of providing a means of cooking meals necessitate for their solution frequent use of all available sources of information by the group. Such research grows from real purpose on the part of the child and contributes to the development of the ability to utilize a library in solving problems.

6. *Construction contributes to the development of many desirable understandings, as well as to the modification of attitudes and appreciations.* The children of a first-grade class, stimulated by the building of a home in their own room, may make several excursions to a house being built a few blocks away. They can see how the house has been planned so that the rooms will be well lighted and well ventilated, how the electric wires are insulated and protected to lessen the danger of fire, and how the plumbing is installed. The building of a Hopi Indian dwelling in a fourth-grade classroom leads to an increased understanding of the effects of climate and other environmental factors on man's ways of living and develops a greater appreciation of the contributions of

science to modern living. Making Indian pottery increases the child's appreciation of the arts and crafts of other peoples.

7. *The construction of actual objects gives the schoolroom an atmosphere that is stimulating and wholesome.* Dramatic play is more lifelike and satisfying in an atmosphere suggestive of the theme of the play. If a second-grade child is to be a postmaster or a mail clerk and is to sell stamps, distribute mail, and perform successfully the other duties of this worker, he just naturally needs a post office in which to work or a truck in which to take sacks of mail to and from the depot. After all, he takes his play responsibilities as seriously as an adult takes his work.

8. *A defensible school curriculum provides a great variety of learning activities, so that all children may participate successfully.* The first-grade boy who has not yet reached the stage of readiness necessary for success in the complex experience of reading may be the one who shows the other children how the propeller can be attached to the airplane or who solves the problem of making a door for the pen of the pet rabbit. The modern teacher knows that successful enterprise is essential to the development of well-integrated individuals. Continual failure is discouraging and ultimately results in a most unwholesome attitude toward the work of the school. It often leads to a dislike of the teacher who puts the child in situations where failure is inevitable. A feeling of having been successful and of having made a real contribution to the work of the group is requisite to good mental health. Many children who cannot feel this satisfaction in the more academic phases of the curriculum will obtain it through the construction activities. This point was well expressed by a successful primary teacher who was being pressed by a companion to justify the time spent in construction activities. She had explained that in the years prior to her launching of an activity program she had always had several children in class who seemed to accomplish very little in spite of her best efforts. She had tried to teach them to read, but they were not yet ready for the mechanics of reading. Now that problem worried her not at all, as there were so many worthwhile learning experiences involved in construction, dramatic play, excursions, rhythms, and other activities connected with the unit of work that the problem of being unable to read presented no obstacles to successful participation in the social life of the group. At this point the principal summed it up by saying, "In other words, these children are no longer the nuisances they once were."

9. *Construction activities provide situations in which the child learns to evaluate his own work and that of others by actual experience.* During the evaluation period held in connection with the construction activity, the child learns to offer and accept constructive criticism.

Construction activities must be carefully guided if they are to be valuable experiences for the children, and if confusion and purposeless activity are to be avoided. The following teaching suggestions will be found helpful:

(a) An important principle, often violated, is that of purpose. Not only must the object to be constructed be an integral part of the whole unit of work, but it must grow out of pupil needs and desires. If a house is to be built, it must be constructed because the children have felt the need for a house, not merely because the teacher feels that there should be one; but the teacher can, and often does, so guide the activities of the unit that the need for certain construction projects becomes apparent to the children and consequently becomes *their* need. Dramatic play stimulated by a visit to a dairy or by the reading of a story having to do with the activities of the dairy usually results in a request from the children to build a dairy in the room so that they can use it for play in connection with their unit of work. A class of sixth graders working with a unit on oil may be stimulated by a speaker from the oil industry, or by something which has been read, to make a collection of all available petroleum products. What it is most important for the teacher to remember in this connection is that while it may seem that certain construction projects should be developed in connection with a unit, a particular undertaking will be successful only as the pupils have a real need for it, together with an understanding of what it implies in materials and work. If the situation is otherwise, the teacher may find herself pushing an unwilling class to the completion of a project or being compelled to drop it, uncompleted and unused. In either case it would have been far better to have had no construction.

(b) Construction projects must be authentic and well planned. This is necessary if the activity is to contribute to the ability to plan and execute, if the children are to grow in their understandings and appreciations of the world in which they live, and if they are to develop a more scientific way of thinking. A danger involved in this conception is that we may expect the child to approach adult standards.

Before building a Hopi dwelling, for example, the children should have given considerable thought to the type of construction, the materials, and the arrangement of the homes of the Hopi Indians and have made a plan for the building. When completed, the project should resemble the homes of these Indians and not those of the Indians of the Northwest. The rooms may be constructed of packing boxes painted to resemble mud and stone, and considerable imagination may be needed to see this resemblance, especially in the work of lower grades, but the basic principles should have been applied. The children should have

gained a better understanding of how and why the Hopi Indians build the type of homes they do and how they have learned to adjust themselves to environmental conditions. They should have learned how science is aiding modern man to exercise a greater control over his natural environment. Authenticity is necessary if these learnings are to result from the activity.

It must be kept in mind that while it is the teacher's function to raise questions, to make suggestions, and to give aid as needed, the planning and constructing must be pupil-initiated rather than teacher-dominated activities. The same is true of the research essential to the successful completion of the undertaking. The teacher can and must make reference materials available, but the children will learn to use these materials in finding solutions to their own problems only as they have actual experience in so doing.

(c) In general, the construction period should be fairly long. Before actual construction can be started there must be at least a short period of planning the day's work, followed by the getting out of tools and materials. Then comes the work period, clean-up time, and usually an evaluation conference. If the period is too short, the actual working time is not long enough to justify the time spent in getting ready and in cleaning up. From 1 to 1½ hours in the primary grades and from 1½ to 2 hours in the upper grades is not too long to devote to this activity. Some may well object that this is entirely too much of the school day to devote to construction and related experiences. So it is, at least in the upper grades, if it is done daily, but such is not usually the case; nor is the time devoted to construction distributed evenly throughout the life of the unit. Certain major projects, especially those needed in dramatic play or for other purposes, may be rushed in the early stages of the unit, with the expectation that there will be little time devoted to this type of activity later. If the projects being constructed are not to be used in connection with some other type of activity, it may be desirable to work on them only two or three days a week. The making of a physical map in connection with a unit on irrigation, for instance, does not need daily attention. The chief value of making the map lies in the resultant pupil growth in understandings and abilities developing from the construction activity itself, and from the research and discussion stimulated by it, rather than in any need for the map.

(d) As has been suggested above, the construction activity must be well organized if confusion is to be kept at a minimum. The following suggestions will aid in this:

(1) A few minutes should be taken before the beginning of work to make sure that each child knows what he is going to do. This planning

period will consume little time when construction is well under way in a given unit and each child or committee has uncompleted work on which to begin. At other times several hours in group conference may be necessary before a major construction project is planned well enough for construction to begin. What is of chief importance is that each child or group have definite plans for the period before work is actually started. If this is done, confusion and purposeless activity will be avoided.

(2) Much construction should and does involve co-operative effort on the part of the pupils. The building and furnishing of a post office or of a Japanese home require participation by all members of the class. Successful teachers have found that effective work may be promoted by the organization of the class into committees, each having the responsibility for a portion of the work. But it is essential that the whole be well planned first, so that each group sees its job in relation to the completed project.

(3) A short evaluation conference just before or after the cleaning up should be a part of each construction period. This is a time for constructive criticism of the work accomplished, and it presents an opportunity for individuals and groups to bring their special problems before the whole class for consideration. In such a situation the pupils learn to receive as well as to offer helpful suggestions. Criticism must be constructive to be of greatest value.

(4) Where space is limited, as it is in most schoolrooms, the teacher will often find it possible to plan the work so that only a small number of pupils are congregated in any one portion of the room at a given time. A brief description of a fifth-grade class during their construction period will illustrate this point: one group of children is busily engaged in building an early Spanish mission in one corner of the room; another group is at work on a large mural, depicting life at the mission, which will be placed on the front wall between the mission and the corner of the room; several girls are in their seats sewing on costumes to be used in the dramatic play; the remainder of the class is at the back of the room, working on some of the interior furnishings of the mission.

While movable equipment, preferably tables and chairs, is to be desired, an activity program is not too greatly handicapped by stationary desks if these can be placed on skids. Room for a construction project can usually be obtained by moving two rows of desks together and utilizing part of the aisle space.

(e) Obtaining tools and materials often presents a difficult problem, especially in schools where the curriculum has not previously made them necessary. While this problem is rapidly becoming less acute as school

boards and administrators are becoming convinced of the educational value of the experience approach to education, many teachers still have difficulty in obtaining needed supplies. The following suggestions may be found helpful in this matter:

(1) The needed construction materials often can be obtained by the children from their homes, the fields, and even the junk pile. Large packing boxes, both of wood and of paper, are often just what are needed for the walls of the post office or the home. Part of the value of the activity lies in the planning and executing essential to obtaining necessary materials.

(2) The problem of tools is more difficult if the school owns none. The primary grades must be supplied with several hammers and saws if there is to be much construction. In the upper grades, where the projects are often larger and where a smaller number of children may be engaged in actual building activities at a given time, it is often possible to get along with a few hammers, saws, and other needed tools borrowed from the homes. This solution is unsatisfactory, however, and each school should be equipped with at least a minimum number of the most necessary tools.

The old saying, "Where there is a will there is a way," is most applicable to this situation. Generally speaking, any class having a determination to get the materials needed for a given purpose will find something serviceable and will manage to obtain enough tools for the work. At the same time, the experienced teacher knows that even in those schools where materials and tools are furnished much initiative is still required to carry on successful construction.

(3) Many schools have discovered that it pays to collect and save building materials for future use. The walls of this year's dairy may be just the thing for the first grade's home next year or for the fifth grade's Mexican market. The board base of the physical map, made in connection with a unit on deserts, may make just as good a base for an irrigation project later. It is surprising the number of times the first grade needs short pieces of board, the type usually tossed into the basement for kindling. A spare closet or a section of the basement where various kinds of materials can be stored for future use is most desirable.

(4) The teacher must remember that most schools lack an ample supply of tools and materials primarily because there has been little demand for them under the traditional educational program. School boards, as well as many administrators, do not see the need for spending the taxpayers' money for these things. Instead of becoming impatient or discouraged because of this situation, the teacher and the class should plan their construction activities in the light of the possibilities

for obtaining needed materials. Both teachers and administrators must remember that expenditures for tools and materials will be forthcoming from the district only as school patrons are convinced of the need for and the value of construction experiences. The development of this attitude must come slowly, through well-laid plans of parent education and through parent participation in the activities of the school.

(f) The problem of what to do with completed projects is easily answered if the teacher keeps in mind the basic principle that construction is justified primarily in terms of the pupil growth resulting from the constructing and from the various activities stimulated by it, such as research, reading, creative expression, and discussion. A general rule should be to dismantle practically all construction projects at the close of the unit or the year, or to have them taken home by the children if that seems the thing to do. One may be reluctant to destroy a physical map or a pictorial map of South America, and it may be a great temptation to retain for display purposes a well-executed mural depicting colonial life or the Indian pottery made by the fourth grade; but to keep these around the building for future reference encourages imitation and serves to put a damper on similar construction in the future. The real value in making a physical map of South America comes chiefly from the research, planning, and executing, and there is little incentive for future classes to make such a map if a good one already exists in the room or the building. There are, of course, some exceptions, but in general it is best to have few or no construction projects of past years cluttering up the building. After all, they were not made for display purposes.

This suggests another general policy relative to the exhibition of construction projects. To have a parents' day primarily for "show" purposes tends to center the attention of the class on the appearance of the finished product, to stimulate competition between rooms, or to have things built purposely for exhibition. This is not the function of the construction activity; such a policy results from a misconception of the philosophy and the psychological principles upon which this phase of the modern school curriculum is based, and it should be discouraged.

(g) There is still a great deal of controversy relative to the value of building in miniature rather than making big things. The answer to this problem in connection with any unit will have to be determined by the purpose of the construction. In general, there has been entirely too much small construction and too little building of large projects. It would probably be better if sand tables were eliminated from the rooms of the public schools, not because they serve no useful purpose

f used in moderation, but because they tend to become over-utilized to the elimination of other types of construction activities.

Obviously, a physical map must be made in miniature, as must a farm or an irrigation project. Such construction stimulates research, discussion, and problem solving and contributes to many socially desirable outcomes, but it has limited use for dramatic play. The colonial home or the grocery store built large enough to accommodate several children has immense possibilities for use in dramatic play and gives atmosphere to the room.

(h) Construction activities cannot possibly be carried on in the quiet fashion of the traditional recitation, but noise can be minimized by careful planning and the development of a sense of responsibility on the part of the children. There must be hammering and sawing at times, and the accompanying noise cannot be prevented from reaching other parts of the building.

Many schools have found it possible to arrange the programs of the several rooms in such a manner that the disturbance of construction will be held to a minimum. A common time for construction in rooms so located that the noise of one room carries over to the next room is often desirable. Construction noises interfere with certain activities less than with others. Co-operative planning by the whole teaching staff of the school can usually result in carrying on simultaneously the less quiet activities, and carrying on at another time those activities requiring a greater degree of quiet.

It is often difficult for the teacher who is trained to expect orderliness and quiet at all times to become accustomed to the hustle and bustle of the activity period, especially when construction is the order of the day. A reasonable amount of noise does not greatly distract children, even in study, when they are used to it. Complaint generally comes from the teachers themselves, or from parents who have grown up in the belief that the schoolroom is primarily a place for strict discipline, rigid control, and little noise. This points to the necessity for a common philosophy on the part of the teachers of a school. For one or two teachers to develop an experience curriculum in the face of unfavorable reception by the other teachers is to create an unhappy teaching situation in the school. Worse than this is the disintegrating effect upon the child which results from the varying philosophies and procedures of teachers he encounters as he moves from room to room or contacts various teachers during the school day.

(i) The inexperienced teacher should realize that the success of construction activities, as well as of other activities involving a great amount of child freedom, is dependent upon the ability of the child



Seventh-grade children arranged this display to show their parents their work on a unit on resources in Ohio.

to accept responsibility for his own actions. Children who have been dominated by the school, and who have yet to learn to accept without abuse the freedom essential to many of the activities of the experience curriculum, cannot be expected suddenly to show the responsibility, initiative, and creative ability demanded for successful participation in an activity unit. A teacher coming into a formal teaching situation will do well to remember that such abilities are not developed in a week or a month but are the result of slow growth over a long period of time and through actual experience. It may take several months of painstaking leadership to obtain the pupil growths essential to the carrying on of a major construction activity involving much group participation. This warning, of course, applies more to intermediate and upper-grade teachers than to primary teachers. In general, children entering school for the first time have not been repressed as have those who have spent several years in the teacher-dominated school, nor have they learned to depend upon the teacher for complete direction of their activities.

(i) As has been suggested above, construction activities are more apt to draw criticism from the community than are most of the other phases of the unit of work. Consequently, it is important that the school carry on a continuous program of parent education looking to a better understanding of the experience approach to education. To fail to do this is to jeopardize the whole program and invite a reaction which may force a return to the formal school situation of the past. While this is not the place to discuss the problem of community education in detail, certain suggestions may be presented:

(1) Utilize opportunities to call the attention of parents to the educational values of this phase of the classroom curriculum. Construction can and does stimulate much research, creative expression, planning, and executing, and it contributes greatly to the success of the whole unit. Parents may be invited to culminating activities showing pupil progress in the development of basic understandings, attitudes and appreciations, and essential abilities. These activities must grow naturally out of the activities of the unit, however, and not become staged performances. Most presentations to patrons should be quite, informal, often growing out of a child's suggestion that he invite his parents in to see what the class is doing.

(2) Use the Parent-Teachers' Association as an agency for continuous parent education in the activities of the school.

(3) Do not attempt too elaborate construction activities if neither parents nor children are accustomed to this type of educational procedure. Remember that while construction activities are of great value and are essential to the best development of the majority of experience

units, many units can be made worth while with little or no elaborate construction, especially in the upper grades, where criticism is most likely to arise.

RESEARCH ACTIVITIES (INVESTIGATION)

The various activities of the unit of work should create many problem-solving situations leading to purposeful investigations on the part of the members of the class. Research may take the form of studying pictures to gain information relative to a problem growing out of construction, discussion, dramatic play, and numerous other learning situations; it may be an excursion to investigate the building of a home or to find out how the grocer displays his fruits and vegetables; it may involve a trip to the city or county library to gather information from encyclopedias, periodicals, and special reference books; or it may involve renting a special film or writing to an oil company to obtain information about the production and manufacture of petroleum.

Research activities begin before the child enters school, and they should continue to be a most important part of his school life. The kindergarten child poring over a large picture book of trains to find out the difference between a flat car and a box car is just as truly engaged in research as is the seventh-grade boy who makes a trip to the office of the state highway patrol to gain firsthand statistics on the causes of automobile accidents and on the chief danger spots of the city and the county.

Here again it is important to remember that the pupil learns by experiencing. The child whose chief school experiences consist of getting assigned lessons, reciting on them, reading materials listed by the teacher, and complying with school regulations generally is not only failing to develop the ability to carry on independent research but is becoming more and more dependent upon the school for the direction of his every move in the academic areas of learning. Our high schools and colleges are full of students who have never learned to formulate and solve their own problems and to do their work successfully without careful direction from their instructors. The junior or senior high school teacher who attempts a modern classroom program in a school in which the pupils have come from the more formal elementary schools soon realizes this: Not only are large numbers of the pupils unable to initiate and carry on research activities, but they lack a desire to do so, preferring to rely upon the teacher to set their tasks for them.

Research is not an activity to be carried on for its own sake, but in order to solve real problems. The time for a child to learn to use an

encyclopedia, an index to periodical literature, and a table of contents is when he requires their use. The unit-of-work approach to teaching creates such need and offers a way of developing research ability in real-life situations. The problem of how to build the fireplace for a colonial cabin is just as real to the fifth-grade pupil as is the problem of installing a fireplace in a modern home to a contractor.

Research, then, grows out of the other activities of the unit and engages the pupil's time as the need arises. Under a well-guided unit of work this need is felt so continually that many teachers set aside regular periods for research on the problems of the day. Although this arrangement is satisfactory for research on problems which can be anticipated or are not immediately pressing, it does not take care of the many problems of such a nature that other activities must be held up until they can be solved. The latter problems necessitate ready access to the school library at most periods of the day or, what is better, considerable reference material available in the room.

REPORTING ACTIVITIES

Few activities have occupied a more important place than reporting in the school curriculum of past years, nor have many been conducted more poorly. It is generally recognized that the ability to organize and present a good report to one's own social group is essential to effective living in a democracy. Not many educators, however, would have the hardihood to contend that we have been very successful in developing this ability. To test the truth of this contention one has only to attempt to stimulate a group of college freshmen, supposedly the more capable of our public school pupils, to develop and present reports upon problems requiring considerable research, organization, and speaking ability. Few, indeed, are the students who can do this acceptably, in spite of the fact that they have been giving assigned English reports for most of their school lives.

Among the values of the reporting activity are the following:

1. If properly guided, it stimulates a great deal of purposeful research.
2. It leads to the development of a very essential ability, that of being able to express oneself in public, by providing opportunities for actual experiencing in so doing.
3. It is an excellent medium through which one or several children may share their experiences with the group.
4. It may stimulate a great deal of group co-operation and planning in research, organization, and reporting.
5. It offers a medium through which patrons of the community may

share their experiences with the children and make real contributions to the educational process.

6. When well guided, it provides pupil experiences essential to the development of an intelligent and courteous audience situation.

The following suggestions will aid the teacher in guiding this activity in the schoolroom:

(a) Of utmost importance is the principle that reporting must be purposeful to the pupil. There should be no reports to the class except as the child has something on which he desires to report and in which the class is interested. Too much reporting has been merely for the sake of reporting. The experience unit is filled with situations necessitating group and individual reports, eliminating any necessity for setting up artificial situations to stimulate this activity.

(b) If the class as a whole is to profit from the reporting activity, there must be an audience situation. This means that there must be a speaker or a group with something worth while to report, an audience with a potential interest in the subject of the report, and an environment suitable to this activity. If these principles govern reporting situations, a teacher rarely needs to reprimand a class for inattention or discourtesy. If difficulty arises, it usually indicates lack of purpose on the part of either the class or the reporting child or group, or a poorly planned and executed report.

(c) Those reporting must realize their responsibility for making interesting and educational presentations. While occasional poor reports may be turned into profitable learning experiences by the ingenious teacher, they should be few and far between. Few teachers will listen attentively or even courteously for more than a few minutes to a dry and uninteresting speaker. Why should children be expected to act otherwise?

(d) Reports should be diversified. The resourceful teacher will work with individuals and groups to develop variety in this activity and to relieve the monotony of the typical reporting situation of the formal school. The possibilities for variation are nearly as numerous as the number of situations in which reporting is desirable. Informal reports of group progress or of some problem encountered in construction or dramatic play will be a part of nearly every activity period. The forum, symposium, and panel-discussion techniques can be utilized to a great extent in the intermediate and upper grades. Illustrated lectures—by the children, by patrons in the community, and by the members of the school staff—are of great value and stimulate interest. Slides or large pictures made by the children themselves can often be used to illustrate these lectures. Dramatization has real possibilities and appeals greatly to ele-

mentary school children. Motion pictures and recordings often can be obtained for use. The development of the narrative to fit a given film, such as one showing the production of oil or the weaving of cloth, requires a great deal of research and creative effort on the part of those reporting. The audience value can be great if the report is well planned.

(e) As suggested in (a) and (b) above, a philosophy well worth adhering to is that if a report is worth giving, it is worth giving well. It must be authentic, well organized, of interest to the class, and well delivered. Teachers discouraged by the inability of their pupils to give good reports must remember that the ability can be developed only if the children are continually in situations that stimulate purposeful reporting. The development of the ability to organize and present a good report is a matter of years of continual experiencing, not something to be achieved at any given level of the school system. The inability of pupils to give good reports should act as a challenge to the teacher and the school, rather than as an excuse for not utilizing this activity fully.

(f) It has already been suggested that the teacher take advantage of the opportunities offered by the community. In most communities there are patrons who can make valuable contributions to the development of many units. A minister who has spent a number of years in China or Africa, a parent who has worked in the oil or coal industry, an interested grocer or postmaster, a member of the armed forces who has been overseas—these and many others can aid greatly in the development of a unit and are usually delighted at the opportunity to share their experiences with the class.

DISCUSSION ACTIVITIES

Discussion is, and should be, an integral part of most of the activities of the unit of work. Its importance is so well recognized that it need be given little consideration in this chapter other than making a few suggestions for its guidance.

(a) Discussion should be more than recitation. The day is long past when learning was conceived to be largely the study of and recitation upon assigned readings. Discussions should develop from situations which are purposeful to the pupil rather than from teacher dictation. Real problems growing out of the unit of work should stimulate much of the discussion of the group.

(b) Although there will be discussion in every phase of the experience unit, certain periods should be set aside for this purpose. These periods need not be daily nor at regular intervals; rather, they should be determined by the needs of the group. For instance, if certain problems

arise which make it desirable, there should be an extended period of research followed by or interspersed with several discussion periods of varying lengths.

(c) It is essential that the teacher give thought to those topics and problems which will form the basis of the group discussion during the life of the unit, but these should not be assigned in the traditional manner. True, the teacher should so guide the unit that the more important problems will become evident to the class and consequently purposeful to them. He must remember that there can be effective learning only as the pupil is progressing toward recognized and accepted goals. Too often teacher-assigned lessons and reports lack this essential element of the effective learning situation. The problems should emerge from class situations so far as possible, rather than from assignments by the teacher.

(d) The discussion period presents an excellent opportunity for pupil participation in conducting discussion meetings. Many teachers organize their classes so that the pupils themselves are in charge of group discussions, with the teacher participating only as a member of the group. In this way, the classes get effective practice in this type of activity.

CREATIVE AND APPRECIATIVE ACTIVITIES

Present-day education is giving increased recognition to the importance of the satisfaction of aesthetic needs and the expression of aesthetic impulses as basic aspects of human living. While at times it seems desirable to speak separately of the appreciative and the creative experiences, the two cannot be separated in the classroom.

A more detailed discussion of these activities is given in Chapter 1. The discussion here is confined to a consideration of creative and appreciative experiences as integral parts of the unit of work.

There are still many educators who take the position that true creative ability is reserved for those few individuals in every generation whose creations will go down in history as real contributions to the culture of the race. Under this concept the great majority of people must content themselves with consuming the artistry of the men of genius. Most modern educators, however, are breaking with this traditional idea and are contending that creativeness is a function of every individual. The ability to create, they believe, is a matter of degree. Creativeness consists of self-expression which for a given individual is new or is an improvement over his previous creative acts. An act is creative if, for a given child, it is unique and original, even though such an act has been performed by children of his age group for centuries past. Creativeness

is to be judged not by its product but by the process going on within the creator.

Any adult who has attended closely to the chance remarks of young children is struck with the beauty and effectiveness of many of their expressions. The preschool child sings at his play, making up the words and music to suit his fancy. The first-grade child whose creative ability has not been repressed in the home and the school will utilize a brush and some calcimine paints to express his feeling in a manner that is as beautiful as it is mystifying to the adult. A six-year-old child, riding through the countryside on a spring afternoon, said, "Tomorrow I am going to paint a picture of the orange trees, with the beautiful green grass and the blue sky"—a truly creative expression of an idea which was re-expressed the following morning through another medium.

To the teacher who believes in the more traditional concept of creativeness, the chief function of the school is to develop an appreciation of the products of our great masters of art, literature, music, and the dance and to encourage imitation of the same. To the teacher of the modern school, who sees in every child the germ of creativeness, teaching is a thrilling adventure, with never a dull moment, filled with innumerable opportunities for guiding the child into those fuller and richer experiences conducive to developing the urge to create. It is only under the latter concept of the nature of creativeness that the full potentialities of the educative process can be realized.

The unit-of-work approach to teaching abounds in situations stimulating the desire to create and leading to the development of finer appreciations in the aesthetic area. Under the leadership of a teacher imbued with the philosophy of the experience approach to education, a group of fifth-grade children will find a unit on such a topic as "Living in Mexico" filled with creative and appreciative experiences. The building and equipping of a Mexican home or market place around which to center their dramatic play leads to creative expression in the arts and crafts and to an increased appreciation of the artistry of the Mexican people. Perhaps they need to make some Mexican pottery or to paint a large mural to form a background for the building, or they may develop a desire to make costumes to wear during the dramatic play period. The children hear Spanish music and sing Mexican songs in the native tongue, thereby learning to appreciate more genuinely the music and language of the Mexican peoples in the only way possible—by experiencing. Dramatizing the fiesta leads to singing and dancing and may stimulate the group or an individual to write original songs. Experiences dealing with the more serious phases of the lives of the Mexican peoples—their work, education, government, and religion—may present opportu-

nities for utilizing much of the fine literature of our southern neighbors and may well result in the writing of original poems and stories by the children.

Again the teacher must recall the oft-repeated principle that we learn only as we experience. There should be much more concern with the opportunities the unit presents for rich experiencing by the children than with any particular facts to be learned, important as the latter are to the development of attitudes and appreciations, as well as to basic understandings. Appreciations will be increased only as the activities are satisfying and lead on to fuller experiencing. Formalized studies of art, literature, and music, emphasizing memory and imitation as they do, fail to achieve this and often result in the development of unwholesome attitudes rather than in the desire for further activity in a given area. A fuller discussion of the place of art, music, rhythm, and literature in the school curriculum, with suggestions for guidance, is given in Chapter 11.

Because of its importance in the elementary school unit of work and because it is so poorly understood by many teachers, dramatization—more commonly called “dramatic play”—is treated at somewhat greater length at this point. As in the case of construction activities, there has been considerable controversy relative to its value as a learning activity. To many it is “sugar coating” and “soft pedagogy”; to others it is natural child activity, having great possibilities for developing creative expression, personality, basic social understandings, essential abilities, and desirable attitudes and appreciations.

To children in the elementary school, dramatic play is much more than mere imitation. Observe a group of children in the neighborhood as they play, unsupervised by adults; or think back over your own childhood when “Cowboy and Indian” was the order of the day; or remember how you played house or school with the other children of the neighborhood. Such play is most realistic to children. They are not *playing* Indian or pirates; for the time being they *are* Indians, and they want to dress, think, and act as the Indians did. They may form a gang to do some real “pirating” if the desire to relive the life of the olden days is not guided into worth-while learning channels. Whether this urge is innate or is learned is immaterial, but if one believes that it is to be found only in the primary grades, all he needs do is observe the behavior of the high school “gang,” the rituals of secret organizations such as the Ku Klux Klan, and the seriousness with which the armed forces utilize dramatization for realistic battle training.

To the modern teacher this ability of children to project themselves into other personalities and other times and places presents an oppor-

tunity to make the educative process a living, vital thing. History is relived rather than studied and discussed. The child becomes a part of it, not a detached, unemotional onlooker. He lives, feels, and acts with the colonists, and in so doing he gains realistic concepts of their ways of living and their contributions to American civilization. An increased appreciation of the place of modern science and industry in present-day living and better understandings of many scientific principles may well be the results. Actually making candles and soap as the early pioneers made them is an experience in chemistry not to be equaled by a formalistic study of chemical action. Reliving colonial school days develops understandings of the function of education in a democratic social order that are impossible of attainment through formal textbook study. Participating in the religious service of the early settlers of America develops an appreciation of the part religion played in the lives of the colonists and of the part it should play today.

To the elementary school pupil dramatic play is an experience in living, not a mere study of life. Among the values of dramatic play are the following:

1. *It is a desirable form of creative activity involving oral and bodily expression.* Dramatic play is neither memorized nor rehearsed. It is free dramatization in which the children participate because they love to do so, and it is not pointed toward "putting on a performance."

2. *It develops confidence in audience situations.* In general, the audience consists of members of the class, who are interested observers rather than invited guests. It must not be assumed that all dramatic play is before an audience, however, as much of it is of a very free nature, especially in the primary grades, with all members of the class participating at the same time.

3. *It develops the ability to work and play co-operatively with others.* It is experiencing in a social situation in which co-operation, individual responsibility, and the recognition of the rights of others are essential to the success of the activity. In many instances the situation requires group planning as well as responsible participation by the individual. Thirty or more first-grade children playing with their trains in a room that is too small for the modern school program soon are forced to the realization that one must recognize the rights of others if his own rights are to be respected. A rather free type of dramatic play is a most important factor in achieving social growth, especially in the early years, when children are by nature quite individualistic and much more concerned with their own welfare than with that of the group. This social value becomes of less importance in the upper grades, for group games on the playground, Boy Scout and Girl Scout organizations, various types

of clubs, and other agencies provide increased opportunities for social experiencing, but it is not to be completely ignored even there.

4. *Dramatic play stimulates other worth-while learning activities.* Among these may be listed research, discussion, construction, excursions, and creative and appreciative experiences in the fields of literature, music, art, and rhythm.

Much dramatic play may be fanciful in nature and as such may allow free reign to the imagination. But dramatization that grows out of some historic event or that has to do with the life of a people should be authentic. If the children are dramatizing life in a Japanese home, they should act as the Japanese do, not as they would like to think they do. This requires considerable knowledge of the Japanese people and their ways of living. Under good leadership the children develop the desire for authenticity and are not satisfied with unrealistic portrayals by themselves or their co-workers.

Dramatization, to be satisfying, requires atmosphere and often leads therefore to construction and to creative art. For example, the children of a class that is reliving the lives of the Hopi Indians may continually find themselves in need of a dwelling and proceed to build one, "so we can be Indians and have a home in which to live." They can be much better Indians if they can dress like Indians, and therefore they make costumes. The combination of construction and dramatic play may develop a desire for a mural showing the fields in which the Indians grow their crops. The children have read of the Hopi Snake Dance and ask to be allowed to dramatize it. This requires research, the creation of costumes, the learning of songs and dances, and the construction of Indian musical instruments. Creative expression through song and dance grows naturally out of this activity. Indian literature is enjoyed and studied for information about the purposes, procedures, and costumes of the Snake Dance. There is much discussion of ways and means, as well as a continual evaluation of the play of the group. These children are learning to receive as well as to offer constructive criticism while reliving the experiences of the Hopi peoples.

5. *Dramatic play contributes to the development of basic social understandings.* Out of the dramatic play of the Hopi unit will come an increased understanding of the manner in which a primitive civilization adjusts its ways of living to the physical environment. Under proper guidance the children will want to study Indians living in different surroundings and see how their food, clothing, and shelter differ. Certainly the child should have a better concept of the effect of natural forces upon a people and of the contributions of science to modern civilization as a result of dramatizing the daily life of the Hopis.

The following suggestions will prove helpful to the teacher in guiding dramatic play:

(a) The problem of stimulating the desire for dramatic play is a simple one, with very young children and with upper-grade children who, through the modern school curriculum, have retained the creativeness, initiative, and imagination essential to the success of this activity. All primary children need is the opportunity for such play and some intelligent guidance by an understanding teacher. Reading a story and asking, "Would you like to play the story?" is sufficient to start play in most cases. Rhythm in which the children simulate trains may lead to a desire to make some trains of their own and this, in turn, stimulates a further desire to play with the trains. If well guided, this play not only creates a situation requiring self-imposed social control but leads to worth-while understandings about where trains go, who runs them, what they carry to and from the community, and what makes them go. Well-timed questions by the teacher and the eternal curiosity of young children may lead to readings, field trips, and group discussions of trains and their work. Realistic play should be encouraged.

As has been suggested, there is no particular problem in stimulating dramatic play when the pupils are accustomed to it. In schools where the children have had several years of formal training, the task is hard but not impossible. Overcoming an attitude of hesitancy on the part of the children who tend to be most self-conscious and who find free expression most difficult presents a real challenge to the teacher. Many children plead that they "can't do it," while others may ridicule the idea as "child's play." Under such circumstances the teacher will do well to proceed slowly, realizing that it may take several months to accomplish much through this medium of learning. Early attempts at dramatization may need to be of a rather formal nature and confined to situations calling for quite obvious pupil reactions. Fanciful or overly dramatic interpretations should be avoided. Children unaccustomed to this type of learning situation may become intensely interested in reliving some historical episode, stimulated by the reading of a story, even if they cannot free themselves of their inhibitions to the point of successfully depicting, through the medium of rather free dramatic play, a group of African natives excited over the news of the coming of the white men.

Dramatic play calls for a freedom of oral and bodily expression, initiative, and a degree of social responsibility, all of which have been repressed rather than developed by the formal school situation. Such abilities, as well as favorable attitudes, cannot be brought to life overnight but must be developed slowly over a long period of time.

(b) An important principle, one often violated, is that dramatic play is to be stimulated and guided but not directed. Dramatic play is a most worth-while learning activity and should be thought of as an integral part of the unit of work. It is decidedly not a preparation for a public performance. Most dramatic play will not be repeated, although in many instances it may be a continuation of the play of the day before. A group of fifth-grade children working on a unit on "Westward Expansion" may be reliving the lives of a group of early pioneers on their way to the Oregon Territory. Their play from day to day may take them across prairie, desert, river, and mountain as they slowly wend their way to their new homes. Today they may be lowering their wagons over a low cliff; tomorrow they may be crossing a river or fighting Indians.

The value of dramatization lies in the playing itself and in the research, the creative expression, the construction, and the other experiences that it stimulates. Whenever this spirit is lost, whenever it becomes a teacher-directed activity looking to the giving of a performance to which the patrons of the school will be invited, it is dramatic play gone wrong. True, it is often desirable to invite parents or other classes to come to enjoy the dramatic play activity with the children, and many units may well culminate in an activity of interest to the parents. Parents will endorse the modern school program only as they have numerous opportunities to participate in it and to observe the development of their children. Also, the experience of appearing before other besides their own classmates is valuable to the children themselves and is to be encouraged. So long as the situation remains one of purposeful pupil participation and others are invited only to share the experiences, all is well. But when the teacher and the class become so absorbed in "putting on a good show" that the activity becomes a rehearsal, it is no longer dramatic play and has no more value than any other staged presentation.

(c) In general, there should be no written script for dramatic play, as this tends toward formalization and memorization rather than creative expression. While there is often a general plot around which the play develops, particularly in the upper grades, words and actions should develop with the plot. If a certain episode is played several times with different groups of children in the class, the words and actions should be different on each occasion. There are times when the plot, and even the words, should follow along a fairly definite line, as during the development of a culminating activity, where parts of the play are dependent upon previous situations. If there is to be music, dancing, and rhythmic interpretations, these of course must be well learned, and the whole activity must follow a well-worked-out sequence. However, such a

culminating activity should be a growing process, not something written and memorized.

Although a culminating activity to which parents and other classes may be invited has real value, it can easily be overdone. An elaborate activity of this type is not necessary, nor even to be desired, for every unit of work.

(d) Generally speaking, dramatic play in the upper grades is pointed principally toward the development of basic social understandings and desirable attitudes and appreciations, with the socializing aspect receiving somewhat less consideration than it does in the primary grades. One finds more continuity and a more definite plot than at the primary level, where dramatic play is of a free nature. However, this difference in emphasis is one of degree and not of kind. This can be illustrated by considering a unit on "Transportation" as it might develop at a first-grade level and at a sixth-grade level. Much of the play at the lower level would be of a free type in which the children play individually or in groups with their trains, boats, trucks, or airplanes. Emphasis would be placed upon the socializing effects of such play, although the opportunities to develop social understandings would not be neglected. At the upper level, however, dramatic play would be much more likely to take the form of dramatizing the conquest of the Pacific by air, or the building and the launching of the first steamboat, or the building of the first transcontinental railroad.

(e) Dramatic play is closely related to construction, usually leading to the latter activity or growing out of it. The dramatization of a story or a historical episode often leads to some form of construction. For instance, a group of fifth-grade children engaged in dramatic play growing out of a story about colonial life may decide that they need a cabin to make their play more realistic. In turn, the completed cabin acts as a stimulus for reliving the domestic life of the early pioneers. A class of second-grade children just naturally needs a store, well stocked with groceries, fruits, and vegetables, if the pupils are to play "keeping store" in a realistic manner. And how can one play farming in the first grade and do all of the things the farmer does if he has no farm, trucks, cows, machinery, and buildings?

PROBLEMS FOR STUDY AND DISCUSSION

1. A well-known psychologist, in discussing progressive education, made the statement that "Learning starts when play stops." Criticize or defend this statement.

2. Teacher A believes that only a very small per cent of children possess creative ability. Teacher B believes that creativeness is an integral part of the learning process and is possessed by all children. In what ways will this difference in point of view affect the classroom procedures of these two teachers?
3. In School X the upper grades are organized on a departmentalized basis. The principal discourages the teachers from planning any field trips that take more than the 40-minute class period, on the basis that it tends to disorganize other classes and that it is not fair for one teacher to ask for time belonging to another teacher. Is this stand in harmony with modern educational thought? Explain.
4. It has been said that the learning activities of the primary child and the junior high school child differ in degree or emphasis, but not in kind. Do you agree or disagree with this? Why?
5. Teachers X and Y are each guiding the development of a first-grade unit on transportation in which the chief interest right now is in airplanes in one class and in automobiles in the other class. Miss X encourages the children to bring toy automobiles from home. Miss Y discourages the children from bringing toys but encourages them to make their own airplanes. In each room a rather free type of dramatic play is one of the daily activities of the unit. In general, which approach is to be desired? Defend your point of view.

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7 Classroom Organization and Pupil Control

THE PROBLEM OF PUPIL CONTROL

The so-called ability to "maintain discipline" has long been considered a vital factor in a teacher's success. "Can he keep good discipline?" has been one of the first questions asked about prospective teachers by superintendents and school boards. Today the term *discipline* is somewhat unpopular in educational circles, chiefly because it savors of the formal, regimented classroom procedures of the past. Educators are not less concerned than formerly with orderly, businesslike schools, but there is a growing belief that if there is to be real pupil growth in the ability to act in a responsible manner, it must grow out of a desire within the pupil to behave in the manner dictated by a particular social situation, rather than to be continually imposed from above. Strict discipline teaches unreasoned obedience to authority, the kind of obedience demanded under a dictatorial form of government, but it is doubtful if it results in the pupil growth essential to intelligent and effective participation in a democracy. It is not a question of whether there shall be order and control in the classroom; there *must* be order if the social group is to function effectively. It is a question of whether order is to be maintained in an authoritative manner by the teacher and the principal or whether the emphasis is to be on developing in the pupils the desire and ability to control themselves.

A teacher who believes that the school should contribute directly to the development of democratic competency, and who believes that learning comes primarily through experiencing that which is to be learned, is committed to democratic classroom organization and control. If the pupil is to learn to differentiate between what is good and what is bad for the individual and the group, if he is to develop the

desire and the determination to conduct himself according to social mores, then he must have continual experience in situations in which control is self-imposed. The children, under teacher guidance, must face problems of group living squarely and work out socially acceptable solutions to these problems. More than this, they must learn that social controls are necessary if the work of the group is to be accomplished and if individual as well as group rights are to be protected. They cannot learn this in an autocratic school situation. Under dictatorship they may learn to conform to authority so long as the dictatorship is maintained, but they will not learn self-discipline nor will they develop competency in democratic governing.

CLASSROOM CONTROL AND THE CURRICULUM

It is a well-recognized fact that in a class dominated by purposeful activity on the part of the pupils there is no general disciplinary problem. A busy, interested child is no troublemaker. It has been emphasized that children differ greatly in their interests, needs, and abilities. A child out of adjustment with the curriculum is a potential troublemaker. A child out of adjustment socially also may become a disciplinary case.

In a certain elementary school populated largely by Mexican children, the policy had been that of failing a fairly large number of children each year in order that they would be somewhere near their grade standard in the so-called fundamentals when they were promoted to the junior high school. As a result of this policy of fitting the child to the curriculum, there were several over-age children in each room. Disciplinary problems were frequent, and a firm hand was necessary at all times to keep the class in order and the pupils at work. The principal ultimately became convinced that this policy was not in harmony with sound psychological principles. Working co-operatively with the principal of the junior high school, he conceived the plan of sending each year to the junior high school all who had reached the age of thirteen at the end of that particular year, regardless of the grade in which they were placed or of their scores on achievement tests. Some twenty-nine children from the fourth, fifth, and sixth grades were placed in the seventh grade on this basis and organized as a special group in the junior high school. Here the teachers were given the difficult task of developing a curriculum in harmony with the nature of the pupils. At the end of the following year the principal of the elementary school volunteered the information that for the first time in his many years

in charge of this school, a year had passed without a serious disciplinary case developing. The problem of maintaining classroom control had been practically solved by the elimination on the one hand of pupils who were maladjusted socially and by the development on the other hand of a curriculum better adjusted to the needs, interests, and abilities of the Mexican child. One would expect that the group promoted to the junior high school, many of whom had been problem cases in the elementary school, would prove a most difficult group to handle, and that the elementary school had solved its disciplinary problems at the expense of the junior high school, but such was not the case. While it took all the ingenuity that a group of superior teachers could muster to provide a curriculum that was purposeful and challenging, and while the teachers at the end of the year were far from satisfied with the results of their labor, the group did not prove to be so difficult to control as had been expected. This was due chiefly to the efforts to provide a curriculum adjusted to them and to the fact that they were now mingling on equal terms with children near their own social age.

ROOM ORGANIZATION AND MORALE

In general, a class that is well organized under the leadership (not dictatorship) of a good teacher will present no difficult problem of group control, although from time to time there may arise individual cases that need careful study and treatment. It should be emphasized again that a class needing an "iron hand" is a class failing to develop such fundamental qualities as co-operation and a sense of social responsibility.

Pupil participation is essential to the development of good pupil morale. Many teachers find it desirable to stimulate the development of a classroom organization under pupil officers, and to encourage the use of parliamentary procedures whenever applicable to the situation. Much of the day's discussion, especially in the intermediate and upper grades, can and should be under the leadership of the pupils, with the teacher an active, not passive, member of the group. Teachers in the upper grades, and even those in the intermediate grades, should feel that they can leave their rooms for fairly long periods, knowing that on their return they will find the class in good order and working under its own leadership.

It is just as important that a child develop the desire and the ability to conduct himself properly in a social situation as that he develop the ability to read, write, and solve mathematical problems. He can develop these desired outcomes of the educational process only as he is con-

tinually in situations leading to and requiring active participation on his part.

The experience curriculum, stimulating as it does a great variety of activities on the part of children, demands expert leadership and good organization if undue confusion is to be avoided. Activity for the sake of activity has no place in the modern curriculum. Before any special activity is begun, whether it is research, construction, recreational reading, or any of the several other types, the teacher and the class will do well to pause for a few minutes to make sure that all pupils or groups know what they are to do and how they are to start. A little time devoted to organization may prevent later confusion and wasted effort and the development of situations which result in control problems.

GENERAL SCHOOL ATMOSPHERE

The whole school situation has a direct bearing on the matter of control in any one room. Pupil attitudes develop out of the total school environment and carry over from one situation to another. It is most important that the general educational philosophy be the same throughout the school and, so far as possible, in the home as well. Much of the effectiveness of good leadership and organization in a given room is lost if the child's activities in the hall and on the playground are of a different nature, either because of lack of leadership or because of a formalistic type of discipline. In a departmentalized set-up it is especially important that there be a common point of view regarding the educational process. It is difficult, if not impossible, for one teacher, having a pupil for one hour daily, to develop initiative, cooperation, and a sense of pupil responsibility for his own actions if that pupil spends the rest of the day in situations where discipline is primarily teacher-maintained, with little freedom or opportunity for self-determined activity.

The problem of moving children in and out of the building in an orderly, quiet manner will have to be solved in light of the peculiar nature of the building itself. Modern buildings are constructed so that children can move informally without congestion. In some of the older buildings it becomes necessary to work out a definite order of entry and exit. Marching in and out in a formal manner is not generally to be recommended, as it is contrary to most situations of entering and leaving crowded buildings. Children need to learn to come in and leave in an orderly fashion without being regimented. Again, this ability can be learned only by doing.

HANDLING PROBLEM CASES

With a curriculum well adjusted to pupil needs and with well-educated classroom teachers with leadership ability, there should be few serious disciplinary cases in any one school. Such problem cases will occur, however, and with greater frequency in some communities than in others. There is no cure-all for these cases. There are, however, certain guiding principles which may prove helpful to the teacher in this connection, principles relating to point of view and general procedure.

1. *Potentially, children are neither good nor bad.* A child who becomes a serious behavior problem does so for a cause. Hence treatment can be effective only as it gets to the basis of the difficulties and brings about a modification of the underlying contributory factors. In cases where causes cannot be corrected, an adjustment of the child's curriculum in the light of the causes is often possible and effective.

Two illustrations will make this point clear. Fred was a boy of ten years of age. His behavior in school was generally satisfactory, but there were times when he sorely tried the patience of his teacher and disrupted the whole class proceedings until his removal from the room for the day seemed the only solution to the problem. A conference with the parents disclosed that the boy was suffering from a bad case of asthma and that at times he spent miserable nights, with sleep impossible. On the days following these bad nights he was a potential troublemaker and seldom got through the day without making a scene, and receiving punishment. As both the father and the mother worked away from home, it seemed necessary to send the boy to school at times when he should have been at home. An arrangement was reached, however, whereby the mother was to call the teacher or the principal when the boy was feeling ill, and on these days, without the child's knowledge, special care was to be taken to prevent the boy's finding himself in a situation where an outburst was liable to occur. He was to be encouraged to work pretty much by himself, so that quarrels with other children were less likely to develop. At the first show of extreme irritation or discomfort he was to be allowed to go to the nurse's room, where he was free to rest, read, or work by himself. Under this intelligent handling of the situation Fred developed into a very good school citizen, and what easily could have become a serious disciplinary situation was obviated through desirable curriculum adjustments.

Arthur, an over-age seventh-grade boy, had been a troublemaker for his teachers for three or four years. He was of average mental ability,

but he did poorly in his academic work and had developed a bad school attitude. His reading ability, as measured by a standardized reading test, was little better than that of an average fifth-grade child. A careful examination by an eye specialist disclosed the fact that the boy needed both glasses and eye treatments if he was to progress satisfactorily in reading and other close work. The necessary eye training was carried out under expert supervision. After considerable protest, the boy agreed to wear his glasses during school hours and at other times while reading. A carefully planned program of remedial reading throughout the next two years resulted in Arthur's reading ability approaching the norm for his grade. Under this understanding treatment his attitude toward the school and his studies gradually improved. With successful achievement came increased interest in his work, and less and less inclination to cause disturbances in the classroom. In this case the correction of the causes of unsocial behavior, with curricular adjustments, resulted in a solution of the behavior problem and in satisfactory school progress.

Causes of serious problem cases often lie deep and may be highly complex in nature. They are not always so easily remedied as in the illustrations above. Broken homes, unwise parental control, undesirable community environment, serious physical defects—these and many other factors cause many difficult and discouraging problems.

2. *Treatment of serious problem cases must be clinical in nature if it is to be successful.* This means that the procedure must be diagnostic and remedial rather than retaliatory. Isolation, punishment, and other measures which do not get at the underlying causes are ineffective and temporary. They do not solve problems of long standing.

Setting up a clinic within the organization of the school itself has been found helpful in many instances. In small schools the whole staff may meet at frequent intervals to study children who seem to need special help, not only because of unsocial behavior but for many other reasons. Children who are overshy, who lack proper home care, who have speech, hearing, and other physical defects, or who are of such low mental ability as to constitute a special problem, become subjects for group consideration. Where possible, these staff clinics should have the counsel of experts in psychology, medicine, social service, and related fields. Many of the more serious problems cannot be solved unless such aid is enlisted.

3. *Successful handling of problem cases requires an objective and impartial point of view.* Teachers who become emotional or who consider improper classroom conduct a personal affront are doomed to failure in most instances. Sympathy, tact, impartiality, firmness when necessary, and an understanding of the contributing factors are essential

elements in determining success. The general attitude of the physician rather than that of the judge is to be desired. Cure, not punishment, is the end in view.

4. *Close and friendly teacher-parent relationships are necessary for the satisfactory school adjustment of pupils in general.* In cases where a serious situation has arisen this co-operation is vital. Little can be achieved in most cases unless both teacher and parent understand the nature of the problem and are in agreement as to the line of attack.

5. *The teacher should remember that most serious problem cases have probably been developing over a period of years and consequently require long-time treatment.* Marjorie was an attractive, bright youngster from a respectable home in the community. Her first few weeks in the first grade were uneventful so far as behavior problems were concerned. But one day she was accidentally hurt by a playmate and immediately flew into a rage, screaming, biting, and kicking not only at the offending child, but also at the teacher who attempted to calm her. Several similar outbursts occurred during the child's first year of school. The teacher was at her wit's end, as there seemed to be no indication of improvement during the year. In general, Marjorie was a well-behaved child. She was courteous and did good work until crossed in her purpose by some playmate or hurt during some activity. Then she seemed to lose all control of herself and had to be removed from the group, usually for the remainder of the day. The mother did not seem much concerned and, while offering her co-operation, did not take the matter seriously.

Matters went along into the second year with little or no improvement. Finally the second-grade teacher, in desperation, called other members of the staff into consultation. One of the upper-grade teachers who knew the family well volunteered a possible explanation. The child had an older sister who was inclined to tease the younger member of the family for the fun of it, taking delight in the resulting temper tantrums. Only at this display of temper did the mother interfere to stop the teasing. Marjorie had learned that this violent reaction got results at home. Why shouldn't she think it would do so in school when she was crossed by playmates?

A program was planned, one involving the co-operation of the home and especially of the older sister, who agreed to avoid teasing Marjorie. The mother, with a better understanding of the situation than before, promised her co-operation in a plan to develop a realization on Marjorie's part that her reaction patterns were not at all desirable. Considering the length of time in which the child had been accustomed to the unsocial behavior, its immediate elimination was not to be expected. In fact, it took nearly six years of work before the girl went through a complete

year without an outburst. However, with the help of all concerned, including Marjorie herself, this result was finally achieved, and a manner of reacting which undoubtedly would have led to much unhappiness in Marjorie's life was overcome.

6. *If behavior problems are numerous the school curriculum may be a major cause.* In situations where a genuine disciplinary problem of a general nature exists, one may well examine the school and its curriculum and administration to find the cause. It is more than likely that the difficulty lies with the school rather than with the pupils. Strict discipline is seldom essential to the preserving of orderly conduct if the curriculum is purposeful and well adjusted to the nature of the pupils, and if the teachers and the principal possess the high leadership ability essential to teaching in the school of today.

THE DAILY PROGRAM

Probably no other administrative feature more aptly illustrates the changes which are taking place in the elementary school than the daily program of studies. The highly compartmentalized program of the conventional school, broken up into numerous subject periods of from ten to thirty minutes each, is rapidly giving way to the more flexible organization demanded by the experience curriculum. Typical programs of the older and the newer approach to education are presented in Chapter 1.

The program of studies in the modern elementary school is flexible and dynamic. It is a general guide to the activities of the day rather than their exact determiner, and it varies from day to day during the week as certain activities require longer or shorter periods. In some instances a room committee, working with the teacher, plans the program for each week in the light of the needs of the total curriculum, and this committee may suggest variations from time to time. An excursion may take the whole morning, including the time usually devoted to special guidance in developing reading ability. Or the completion of a store in the second grade or of a colonial cabin in the sixth grade may postpone other activities because it seems desirable to devote extra time to the construction activity during the early parts of the units.

Many present-day schools are organizing their work so that approximately one-fourth to one-half of the day is devoted to the activities of the major unit of work, with from one-fourth to one-third of the day reserved for special guidance in reading, writing, spelling, and arithmetic. This leaves the remainder of the day for such other activities as physical education, leisure-time reading, music, and the arts and

crafts. The amount of time scheduled for these latter areas will be largely determined by the extent to which they may be incorporated in the unit of work during the activity period. Some units are exceedingly rich in the arts and crafts and in literature, while others offer quite meager possibilities. A sixth-grade unit "Living in Mexico" possesses unlimited opportunities for creative and appreciative experiences in all these areas, as does a fourth-grade unit "Indians of the Southwest." But it would seem doubtful practice to limit a group of eighth graders to such music and literature experiences as might grow naturally out of the unit "Oil," granting that even there the possibilities are greater than is usually supposed.

REPORTING PUPIL PROGRESS

Report cards and subject marks have long been controversial issues among various groups of educators. While there are still many who would retain the old-type report card with its five-point rating scale, the trend is definitely in other directions.

A number of schools have adopted a three-point marking system to indicate highly satisfactory work, satisfactory work, and unsatisfactory work, while others are marking work only as satisfactory or unsatisfactory.

The Informal Letter. Many schools have eliminated the formal report card and now use a special letterhead on which the teacher writes an informal note to the parents of each child. In this letter the teacher summarizes the child's growth since the last report, discusses any special problem which she feels should be considered, and at times indicates those areas in which the child is especially capable or seems to lack a high degree of ability. A perforated portion of the report may be torn off for the parent's reply to the teacher.

There are several advantages of this reporting procedure, among which are the following:

1. *It is a friendly, informal letter rather than a formal report, and it contributes to a better teacher-parent relationship if proper care is taken in its planning.*

2. *If carefully composed, it is more meaningful than the formal report.* Marks are relatively meaningless, even though parents may feel otherwise about them. One teacher may grade in arithmetic so that the mark represents high achievement in class in relation to the other pupils. Another may count effort highly, so that the mark really is representative of industry rather than of achievement. Other teachers may grade on improvement, while still others may allow pupil conduct to affect the mark. This is, of course, an argument against the usual

type of report card rather than one in favor of the informal letter, except as the letter is so worded that it gives a more accurate and complete picture of the child's progress in various phases of pupil growth than does the formal report card. Unless the letter is written with care and accuracy, very little gain will have been made in keeping the parent informed of pupil growth, although the most undesirable features of the older type of report will have been eliminated.

Reports of character growth in terms of marks mean very little. For instance, does a drop from an A to a C in citizenship from one month to another mean that a child is degenerating morally, that he is running in bad company, that he happened to get caught throwing an eraser in class, or that the teacher has decided to "clamp down a bit" in his grading? Any unsatisfactory mark, whether it is a grade of U in a two-point system, a D or an F in a five-point system, or a mark less than 75 on the old percentage basis, calls for an explanation to the parent. This can be done by a letter or by a personal talk. The low mark, however, tends to set up a barrier between teacher and parent, teacher and child, and parent and child, making it more difficult to achieve a friendly and frank discussion than if no mark had been given in the first place.

3. *It is more flexible, and it fits the needs of the reporting situation better than a formal report.* It is not possible accurately to measure progress in the various areas of learning by monthly or six-week periods. Even our best achievement tests do not measure finely enough to permit reports of progress in reading, spelling, arithmetic, social concepts, and so on by such short periods. The informal letter may stress one area of growth at one time and another area at a latter date.

For example, one school adopted the general policy of reporting on pupil adjustment to the new school situation about eight weeks after the fall opening. Letters sent to the parents ten to twelve weeks later discussed the child's interests and abilities in various learning areas, commented upon his general school attitude, and gave specific information of growth in any of the special areas where the teacher felt it desirable and possible. Results of any diagnostic or mid-year achievement tests were discussed in this report, not in technical terms but in language the parents could understand. In the final report, made at the close of school, the teacher attempted to present to the parent as complete a picture as possible of the child's progress in school in personality and character traits, in social adjustment, and in the more specific subject areas. The data of the spring achievement tests were utilized freely in this final report, which also contained space for the teacher's recommendation on promotion or retention. This was considered necessary, as many children transferred to other cities during the summer and the

report would be needed as a record of grade placement. In this school any special problem about which the parent should be informed or consulted was made the subject of an immediate note, telephone call, or personal talk, instead of being held over for the next report period.

4. *It forces the teacher to study the pupils as individuals, in order to report intelligently on them.* The informal letter type of report requires the teacher to reflect seriously at intervals about each child in the room, and to summarize these reflections in letters to the parent. It would seem that such forcing should not be necessary, as every modern teacher feels that individual attention is one of the requirements of good teaching. It is easy, however, in the rush of teaching, to overlook a number of children, especially those who do not push themselves into the foreground by either exceedingly good or poor work, by their superior leadership abilities, or by their disturbances of the class. To write a good report, the teacher must carefully consider the child and then describe his growth and adjustment, rather than listing his examination and recitation scores and then adding a few words about his conduct.

The disadvantages of the informal letter report may be summarized as follows:

1. *The informal letter is time-consuming.* Writing a carefully prepared letter to the parent takes much more time than filling out a formal report card. The rush resulting from the necessity of writing some thirty or thirty-five letters is liable to result in stereotyped reports. This is a real danger, but it can be averted. A good policy is to begin writing the letters two or three weeks before they are to be dispatched. Some teachers make a practice of writing three or four letters a day over whatever period is necessary to complete the job.

2. *Parents want the formal report card, with its marks in the several learning areas.* This is largely a matter of tradition. The formal report, with its subject and department marks, has been so much a part of the educational system that parents cannot be blamed for resisting the change from something familiar to something new. Any change from the formal to the informal must be a comparatively slow process, and it must be preceded by a fairly long period of parent education. An intermediate step from the old-type report to the informal letter is often desirable, probably one utilizing a two-point or a three-point grading system.

3. *Some teachers cannot write good letters.* This may sound unbelievable, but unfortunately it is true. While the majority of teachers can compose well-written letters, a number cannot, and these few may do irreparable damage. It takes only a few letters with misspellings and grammatical errors to start the community whispering that the

teachers themselves cannot write or spell. But this is not a legitimate excuse for rejecting the informal letter type of report to parents. If a teacher in the elementary school is unable to write well, it is difficult to see how she can guide her pupils in the art of expressing themselves in writing, and she should either develop this ability or find some other line of work. It may be that the principal will have to check each letter carefully the first two or three times reports are sent to parents, and he may have to read and correct the reports of some teachers for a much longer period.

4. *The letter type of report may become too general to be meaningful.* There is a definite danger that letters may become a series of stereotyped generalizations and be nearly as formal and meaningless as the older type of report card. At least the report card is definite and indicates that the child is doing B work or is failing in reading, spelling, and the other subject areas and is excellent, good, or poor in his conduct. The fact that these markings are unreliable is not known to the parents, who consequently have considerable faith in them. Unless the informal letter can furnish something definite about the child's progress from time to time, the parents will not be satisfied with the change. But this danger can be avoided through the development of a guide sheet to aid the teacher in writing the letters. Prior to the writing of each series of letters, the faculty should plan the points which are to be considered in the report. If this is done carefully, each report to parents will discuss certain definite factors, yet the different reports during the year will vary in emphasis. Each child's problems are different from those of the others in the class, so that no two letters should be alike, even though certain phases of the educational problem are discussed in all the letters.

Some schools have experimented successfully with reports written by the children themselves. In one instance the children reported upon their various school activities, discussing their achievements in the different learning areas, and commenting upon any problem of special concern to the particular child. Each child then discussed his report with the teacher, after which the teacher wrote her own report of progress, scaled it with the child's report, and mailed the two to the pupil's parents. At the close of the year a questionnaire survey of the parents showed that the majority of them were enthusiastic over the experiment or at least satisfied with it. This manner of reporting has real possibilities for effective guidance of the child, especially in helping him to understand and evaluate his own abilities, interests, needs, and learning problems. It is also an excellent letter-writing experience.

The Problem of Marks Any discussion of the problem of re-

porting pupil progress is incomplete without a consideration of the subject of marks, still a highly controversial question in many sections, especially at the secondary and college levels. Many teachers sincerely feel that the giving of marks, often called "grades," is necessary in order to motivate the pupils to work harder. They argue that pupils cannot be made to work at difficult and distasteful tasks unless motivated by the desire of obtaining good marks or the fear of getting low ones. They also insist that even though the teachers may desire to eliminate marks, neither the pupils nor the parents are willing to give them up. Should not a child experience failure? ask the parents, as well as the teachers. Is not the world outside the school a competitive world where some will succeed and others will not? The unfit in business and industry become failures. Is it a good policy for the school to label each child a success and turn out many pupils with an exalted opinion of their own abilities? If they are poor in the various learning activities of the school, they should find it out. How can this be done if you eliminate marks? What about those who are going to college and will have to face the college examination and marking system? If you eliminate marks in the public school, what will you use as a basis for promotion and retention?

It is doubtful whether there is anything to be gained by the traditional marking system which cannot be achieved better by other procedures, procedures that eliminate the undesirable features of the older scheme. Educators who oppose competitive marking and reporting believe that competitive marking as a basis of reporting to parents is contrary to modern educational psychology and philosophy. Learning is a purposeful, goal-seeking activity, and it is most efficient when the learner is progressing toward goals accepted and recognized as his goals. In other words, the most effective learning takes place in school when the learner sees a real purpose in the learning situation, when he has a desire to learn for the sake of the learning rather than because of some external motivation. Undue emphasis upon marks and credits forces attention upon them as the desired goals, so that they become the ends toward which the student works. The attitude developed among high school and college students by this procedure is too well known to require discussion here. Entirely too many students are selecting those courses in which they think they can get passing or high grades rather than those in which they have any particular interest. Courses selected for the mark or credit to be earned present very poor learning situations and are not likely to develop lasting interests.

Individuals differ greatly in their abilities to learn. In any area of the curriculum there will be a wide range of learning ability on the part

of the pupils in the class. A few children will progress slowly, while a number of others will make rapid progress. No matter how hard some children work at arithmetic and on the basketball court, they cannot do nearly so well in either as other members of the class who exert less effort. To mark children on a competitive basis condemns some to poor reports no matter how hard they work, while others who expend less effort receive high marks, together with the pleasure and standing which this gives.

The author well remembers a case encountered in the early years of his teaching experience. Soon after the regular six week's report had been sent home, George's mother called to discuss the boy's schoolwork. The report-card was discouraging, showing all C's and D's except for the A in citizenship and the B in industry. George's mother, as she put it herself, was ashamed of her son and had come to see what could be done to make him work harder so that he could get good grades. The mother was willing to do anything she could to help. She would make George stay in nights and study if his teacher would let her know just what he was to study each day. She also hoped that George would be kept in after school and made to get his work. The school had her permission to keep him every night, if necessary. She had scolded him about his report, and the father had even offered George a new bicycle if he would raise his average to B and keep it there for a year, but to no avail. He was getting to a point where he paid little attention to his parents and did not seem concerned about his low marks.

At a loss as to what to say, the teacher called attention to the high marks in citizenship and industry and attempted to explain that while George worked hard, his abilities in the academic areas were not too high, that he had to work hard to achieve even average marks. It was suggested that the mother should not judge George's work by that of the older sister, whose academic abilities were greatly superior to those of the boy.

If the teacher had been more experienced at the time and had had the courage of his convictions, he would have explained the actual situation to the mother in words about like the following:

"Marks are assigned on a competitive basis, with the high ones going to those students of superior achievement in comparison with the other members of the class, and the low ones to the members of low achievement. Grades of A and B in arithmetic represent very superior and superior work on the part of the pupil in comparison with the work of the other pupils, while grades of C, D, and F are indicative of average, poor, and failing work. Grades are assigned as fairly and as objectively as possible on the basis of the classwork and tests of achievement during

each period. Now it so happens that George is one of the lower-ability pupils in academic learning situations and has to work much harder to get a grade of C than some of the pupils do to get grades of A and B. No matter how hard George works, he has practically no chance of getting into the B or the A class in these areas unless several of the students practically quit working, or unless the teacher grades him on his effort rather than on his comparative achievement. Actually, a grade of C is a great accomplishment for George, and he should be congratulated rather than condemned. George just isn't built right for successful competition in the usual school subjects. Keeping George after school, scolding him for low marks, and continually putting pressure on him to get high marks will avail little except to make him dislike school and those connected with it. After all, it is most discouraging to have tried hard month after month and year after year and still get report cards with poor marks. Then to be scolded for this and to have others of higher ability held up as examples of what one should do is not conducive to a good school attitude. George must be made of sterling stuff to have kept trying for so long in such a hopeless situation. You had better forget your own ambitions and pride as George's mother and give him the credit he deserves for a job well done. After all, George is a victim of a system over which he has no control. Possibly it is the school you should condemn for fostering practices so unsound psychologically and so unfair to the pupil." And the teacher could have continued honestly, "Let's look at George's achievements rather than his failures. George is one of the very finest of school citizens. He is cooperative, dependable, and industrious, and he shows real leadership on the playground. He is one of the first to be chosen for the different teams at recess and at noon, and he often acts as captain. While just past thirteen years of age, he is an outstanding member of the Scout troop. He will make First Class by spring, and he stands a good chance of being selected for a patrol leader within another year. Personally, I wouldn't worry about his lack of an exceedingly high academic intelligence. He easily makes up for this with his high social intelligence and his leadership qualifications. He has sufficient ability of the type it takes to complete high school, although he will never be an honor student. He will, however, be a leader in many of the extraclass activities, and he will ultimately become a leader in the life of his community."

Competitive marking does contribute to an unwholesome school attitude. The over-age child often becomes a serious problem, particularly in the upper grades and in the secondary school. No adolescent boy or girl likes to be in a class with "babies," and often resents the

system that has put him or her there. No matter how interested these pupils are as young children, thrilled at the thought of being old enough to go to school, they will ultimately lose interest in their tasks if their only reward is low marks and failing marks. They are apt to become openly rebellious or to adopt the "don't care" attitude as a defense.

On the other hand, bright children are often able to obtain high marks with less effort than is good for them, so that they develop poor study habits. Entirely too many of our most capable pupils make failures of their first year of college because they have never learned to apply themselves fully at schoolwork. This, obviously, is not to be charged entirely to the marking system, nor will the elimination of this system remedy the situation. The marking system, however, is a contributing factor to this situation, for it has taught the students to judge success in terms of grades rather than in terms of progress in relation to one's ability to learn.

Overemphasis upon marks tends to develop dishonesty. The prevalence of cheating in high school and in college is ample proof of this. Even more serious than the attitude of high school and college students toward cheating is their attitude that cheating may be justified as a means to an end. The end of study tends to become the mark and the credit rather than the understandings, attitudes, appreciations, and abilities to be developed. Students finding themselves in situations where it seems necessary to do some cheating to attain these ends justify themselves on the grounds that others cheat and they must do so in self-defense.

Some make out a good case for the use of marks as a means of developing a sense of responsibility. The so-called "honor system," which has been such a grand failure in so many institutions, is an example of this attempt. If one could justify marking on other counts and could show its necessity in the educational system, he might agree with this point of view; but such justification cannot be found, except on the grounds of tradition. From a psychological point of view, the present marking practice is wrong and should be greatly modified.

Are courses requiring the assignment of marks for purposes of motivation of maximum value to the pupil? The writer believes that courses organized and taught so that the threat of low marks or the continued emphasis on high marks is necessary to make the student work are of doubtful value. The experience of those modern elementary schools in which marking has been discontinued as a basis of reporting to parents is conclusive evidence that marks are not at all necessary as motivating forces if the curriculum is one of rich and varied learning experiences at the child's level of maturity.

It may be true, as many contend, that pupils have become so used to working for marks and credits by the time they reach high school and college that these external motivators are necessary to make them work. If so, this fact is a serious indictment of the marking system. If marks and credits are essential to education, it is because educators have made them so, not because of any factor within the child. Children generally are active, curious, eager individuals who want to find out about the world in which they live. Certainly the elementary school has no legitimate need for a marking system to make children work if the curriculum is purposeful. Any system which helps to perpetuate any other type of curriculum, or which protects inefficient or long-outmoded teaching practices, cannot be defended as sound educational policy.

The school of the past has been largely a competitive institution. The marking system is the essence of the competitive spirit and definitely discourages co-operation. Yet the world outside the school is not the highly competitive world which many defenders of the marking system claim. While it may be true that the owner of a store is in competition for trade with other store owners of the community, the workers within each store—and they far outnumber the owners—are primarily engaged in a co-operative enterprise. Successful competition of a store with other business institutions is to a great extent dependent on a spirit of co-operation and loyalty among the employees of that store. A community progresses only as the individuals within that community are capable of working together toward a common end. The family must be a co-operative undertaking, not a competitive institution in which each member strives to outdo the others.

It is essential that the pupil and his parents, as well as the teachers, understand the child's abilities, needs, and interests. There are far better ways of developing this understanding than by the traditional marking system. This is a guidance function for which the school, and each teacher in the school, is responsible. As such, it has been discussed at length in other chapters. More, rather than fewer, records of the child's abilities, interests, needs, experiences, and accomplishments are needed. These records should be cumulative in nature, running from the kindergarten or first grade throughout the school life of the child. They should contain the data derived from numerous intelligence, achievement, special-aptitude, and adjustment tests. They should give each teacher's estimate of the pupil's ability in those areas in which that particular teacher is capable of making such an estimate, and there is no objection to having these estimates in terms of a five-point rating scale. In counseling with both pupil and parent, these estimates should be at hand.

They are confidential in nature, however, and are not to be placed on report cards and sent home, often to misunderstanding parents; nor to be used as rewards and punishments; nor to affect the pupil's educational standing in the class and community. Used for counseling purposes with both parent and child, estimates of ability become most valuable; used for reporting and motivating purposes, they become harmful in their effects.

Informal letters, individual conferences, and reports of progress based upon sound measurement and observation are far superior to report-card marks as a means of keeping pupil and parent informed of the child's progress.

GROUPING—PROMOTION AND RETARDATION

On what basis shall pupils be passed or failed? In former years the threat of failure or of being put back a year often was used as a means of spurring the laggards and the less capable to greater efforts in their daily assigned tasks, while the promise of double promotion often was held up as a reward for high achievement. In the days of the "lock-step" curriculum, when all children in the fourth grade did the same lessons in arithmetic, spelling, and history and when it was considered essential that a child be able to read the fifth-grade books and do the fifth-grade arithmetic before he was promoted, double promotion seemed to be the only satisfactory manner of adjusting the bright child to the curriculum, while failure and retardation were the lot of the less luckily endowed child. Grade standards were sacred, and teachers who promoted children who did not "measure up" were condemned for lowering these standards. To be spoken of as one who maintained good discipline and had high standards of achievement was to receive one of the highest compliments which could be paid a teacher.

The philosophy and the practice of the modern school differ greatly from those of the school of yesterday. Teachers now believe that a far better educational situation is obtained when children are kept in their own social-age groups and the curriculum is adjusted to the nature and needs of the individual child.

Today the school is considered responsible for the fullest development—socially, physically, emotionally, and mentally—of each child in its care. Children differ so greatly in their abilities, interests, and needs that no set, standardized curriculum can possibly achieve this end. John is a monotone upon entry to the first grade; Willard sings beautifully; Mary is a bright youngster from one of the better homes of the community; Elizabeth comes from a home poor in its educational en-

vironment, and she reacts rather slowly in academic situations; George is an outstanding specimen of healthy boyhood; Henry is undernourished and frail. The educational needs of all these children can best be served through the development of a flexible curriculum adjustable to the needs of the individual. This does not necessitate a completely individualized system of instruction, nor does it imply that social needs are to be subordinated to individual needs. Many, if not most, of the activities of the school of today are social in nature; but growth itself is an individual process.

A better educational environment is obtained when the group is comparatively homogeneous socially but heterogeneous academically than when it is socially heterogeneous but academically homogeneous. The modern school takes the point of view that there is no such thing as fifth-grade arithmetic, third-grade spelling, and seventh-grade geography which everyone in these grades must study. Rather, the child is taken at his point of achievement and developed in the various learning areas as rapidly as he is capable of progressing. For some children the place to begin learning to read books is in the first grade; for others it is in the second or even the third grade. Children are no longer passed or failed primarily on their ability or lack of ability to read the books or to do the arithmetic of a given grade. It is better for his all-round development that the child be kept in his own social-age group, with the curriculum adjusted to him, than be out of adjustment socially even though with a group more nearly at his own level of achievement in the different subjects. There are entirely too many pupils in our high schools who are denied the privilege of and opportunity for social leadership, a place on the first team in basketball, or a possibility of being elected president of the student body, not because of lack of ability in relation to their years but because of social and physical immaturity. The double promoting of young, bright children may be necessary in the traditional school in order that the child will have challenging work to do, but it often results in social maladjustment. It is entirely possible to develop a curriculum which provides for the individual much more satisfactorily than the older system of failure and double promotion did, and which at the same time keeps children with others of their own social age.

Retention or double promotion may sometimes be desirable, but it should be recommended on the basis of better all-round adjustment of the child and not on any failure to achieve certain subject standards or on superior academic ability alone. For example, Jean enters the first grade at the age of five years and eight months. Most of the children in Jean's room come from the better homes of the city. The aver-

age chronological age of the first-grade children is six years and three months, while the average I.Q. is 107. Jean has an intelligence quotient of 98, as determined by an individual intelligence test. At the end of the term Jean has made satisfactory growth, considering her level of maturation, but she is not well adjusted either socially or physically. She is just now beginning to make some progress in her reading. Being younger than the majority of the group, she exercises very little leadership in the different activities of the room. Jean's teacher and the principal are convinced that the child would develop much more rapidly and have a greater opportunity to experience leadership if she were placed in a younger group. After consultation with Jean's parents, it is decided to retain her in the first grade for another year. This is done, however, not on the basis of scholastic failure but as a matter of social adjustment. Both Jean and her parents understand and accept the retention, realizing that no stigma is attached to it.

Many ask if this practice will not result in the elimination of grades. The author personally has no objection to retaining the word *grade* to designate a group so long as the practice of promoting and failing on the basis of grade standards is eliminated and the policy of social-age grouping is adopted. The particular term used to distinguish one section of children from another is immaterial, and there is some advantage in retaining a term which is universally accepted. But so far as it indicates a standard of achievement rather than a social group, the term *grade* should be on its way out.

PROBLEMS FOR STUDY AND DISCUSSION

1. The phrase "maintaining discipline" is rather repugnant to teachers today. Does this imply that they do not believe in orderly, well-behaved classes? Discuss the implications of their philosophy for classroom teaching.
2. Many educators would defend the thesis that in situations where there is a bad disciplinary situation, the fault lies with the administration, the staff, or the curriculum, or a combination of these, not with the children. Criticize or defend this proposition.
3. The modern educator takes the position that the teacher should assume the role of counselor rather than of judge in the handling of serious disciplinary cases. Justify this point of view. Does this mean that there shall be no punishment in the handling of these cases? Explain.
4. Compare the daily program of the progressively inclined school with that of the conventional school. What are the advantages and the disadvantages of each?
5. Defend or refute this statement: Retardation, resulting from the insist-

- ence that children reach certain grade standards before being promoted, results in the development of many disciplinary cases in the upper grades.
6. Discuss the advantages and the disadvantages of the older and the newer procedures of reporting pupil progress to parents. Which are more in harmony with modern psychological thought? Explain your answer.
 7. Children may be grouped for instructional purposes on the basis of their level of achievement in the school subjects, or they may be grouped on the basis of their social ages. What are the advantages and the disadvantages of each procedure?
 8. What are some of the implications of the social-age grouping for classroom teaching procedures? Consider the learning activities in such areas as reading, art, mathematics, and the social studies.

READINGS FOR FURTHER STUDY

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8 · The Modern Elementary Curriculum

PURPOSE OF THE SCHOOL

The chief purpose of the school, as discussed briefly in Chapter 2, is to develop in its pupils the capacity for effective living in a democratic, complex, and highly dynamic society, a society in an atomic age. Social and personal integration is conceived to be the desired outcome of the educative process. Stated simply, this means the developing of individuals capable of effective adjustment and readjustment to the problems of social living. If democratic civilization is to be perpetuated and improved, it is essential that there be a certain commonness of ideals and purposes among its members. Otherwise there will be a tendency toward disintegration rather than integration. Also, if individuals are to live reasonably happy and worth-while lives, they must develop ways of thinking and of acting in harmony with the nature and needs of the social order in which they live.

Freedom of thought and action is the essence of American democracy. On the surface this would seem to imply the right of any individual to think as he pleases on social, political, and economic issues and, within reason, to do as he pleases. If unguided, however, this very freedom could lead to the disintegration of democracy. If the ideology of Fascism or of Communism should be accepted by large groups of the citizens of the United States, intense civil strife would result, with the ultimate disintegration of our present social order.

Some may argue that if Fascism or Communism can demonstrate its superiority over the democratic process, it should be allowed to do so, but that is beside the point. Unless there is a common belief in the ideals of a democracy by its peoples, that society will become disrupted to a degree that endangers its very existence. There can be considerable difference of opinion on the particular forms and institutions of democ-

racy so long as these differences are settled by democratic means and so long as the ideals of democracy are retained, but there must be a common belief in the democratic process if democracy itself is to continue to exist.

In order to hold together and to function as a well-integrated unit, a society must be able to produce goods and services to meet the basic needs of its members and to perform the distributive function so that these needs are met satisfactorily. It is equally true that the individual himself must develop the ability to produce if he is to live a reasonably happy and worth-while life as a member of the group. A degree of disintegration results in both the individual and the society when changing conditions greatly disturb this function. For instance, suppose Mr. X, a man of forty-eight years, has always earned a living as a bricklayer but that economic conditions, together with changes in the building trades, now make it impossible for Mr. X to find continuous employment and force him into the relief lines. A state of uncertainty and despair is the inevitable result. If Mr. X is of a flexible nature and if conditions make it possible, he may be able to make the necessary adjustment in his way of producing so that he will again be able to make a living and consequently regain that degree of integration essential to effective living. If too many members of a society find themselves in the position of Mr. X, however, and if the society cannot make the necessary readjustments, an alarming stage of disintegration characteristic of any period of great unemployment is reached.

A function which the school traditionally has accepted as one of its major responsibilities is that of developing the ability to communicate. Educators may disagree as to the best method of developing this ability and even upon the scope of this function, but there is general agreement that any individual living in the United States is greatly handicapped if he cannot read fairly well, interpret what he hears with some degree of intelligence, and express himself articulately in oral and written form. This ability is essential not only to the welfare of the individual but to the perpetuation of a democratic society. This very necessity of being able to communicate one's thoughts and feelings to others and of understanding their expression makes it essential that an individual learn to read, write, spell, and speak effectively if he is to live fully as a member of our particular social order.

The chief purpose of the school, then, is to guide and stimulate pupil growth along those lines needed in the performance of the activities and functions which are essential to living as a member of a group and to developing fully as an individual. This means that the school must develop in the pupil realistic understandings of our society and those

attitudes, appreciations, and abilities which insure intelligent action. It is not enough to know what should be done; there must be an inclination to act, together with the ability to act for social as well as for individual welfare.

Recent psychological studies indicate that the capacity for effective social living will be developed only as the child experiences in an environment conducive to this growth. The time is long past when educators believed that history and civics, taught in a dictatorial manner while the pupil remained relatively passive, would produce desired results in terms of modified pupil conduct and ways of thinking. The modern school is developing a real social-living curriculum that emphasizes pupil experiencing rather than the studying of traditional subjects. Modern educators are realizing that the school is only one of the many forces which make the child and society what they are; that the education of the youth of the land along the lines of the aims of education can be most effective only as the school, the home, and the community work together as an integral unit rather than as separate agencies. We are realizing that the school must become more closely interwoven with the community and also that the capacity for effective social living develops from the total experiences of the child, not as a result of the activities of any one or two classrooms or subjects.

These changes in our educational philosophy and in our understanding of learning principles have caused many educators to believe that major revisions in the learning activities of the conventional school are essential if the school is to fulfill its purpose and justify the confidence placed in it by the community. Because the term *core curriculum* has been so closely associated with educational developments in recent years, it is necessary to consider this approach to improved teaching.

THE CORE (COMMON) CURRICULUM

The general philosophy of the core curriculum is that social and personal integration is possible only when there is fairly common thinking and acting on the part of the members of a society. Individuals living in a democratic social order such as ours can participate effectively and intelligently in that order only as they develop those understandings, attitudes, appreciations, and abilities that are essential to carrying on their daily activities in a manner benefiting both the individual and the society. The chief purpose of the school is to provide a curriculum of experiences which will enable its pupils to perform better those functions of life they will be called upon to exercise as members of the community, the state, and the nation. The core curricu-

lum, then, consists of those experiences believed to be essential to all—the common experiences.

This does not mean, as has often been thought, that all persons will or should learn exactly the same things in exactly the same way. What it does mean is that there are several basic functions of social living which must be performed by all and that the school curriculum should be organized so that all pupils are continually experiencing along those lines. Obviously, not all pupils learned or were expected to learn exactly the same things from the two units on "The Home" and "Weather" presented in Chapters 3 and 4; yet there were many common experiences. In many of the situations the success of the activities required social control, group and individual planning, co-operative action, leadership, creative self-expression, research, appreciative and investigative reading, application of mathematics to life problems, and numerous other experiences that are essential to democratic living.

To understand the concept of the core curriculum, it is helpful to compare it with the organization and terminology of the conventional curriculum, which still forms the basis of most schoolwork. Many educators have claimed, and with a good deal of justification, that we have always had a core curriculum but have not usually called it that. There have always been certain required subjects, and within those subject boundaries certain subject matter and skills have had to be mastered by all. These subjects were common to all students and constituted a core curriculum, subject-matter-centered though it was. Today, when we think of the school curriculum as the whole of the child's experiences under the guidance of the school rather than as subjects to be studied, the older term, *required subjects*, becomes inadequate. Whether the term *core curriculum* is a happy selection to express the concept of these experiences which we believe should be common to all is open to argument. It is gaining general acceptance, however, and the use of another term would only add to the confusion.¹

Any curriculum, whether it is based on a subject-matter mastery or on an experience concept of learning, has what is now generally called "scope and sequence." *Scope* is used in its usual meaning of "breadth" or "extent," and *sequence* designates the order of things. Under the conventional subject organization the scope of the core curriculum is determined or set by the total number of different subjects required of all pupils, and the sequence is decided by the order in which one subject follows another. Even a single subject, such as arithmetic, has

¹ *Core curriculum* is sometimes applied in a much narrower sense to a fusion of English and the social studies, and, as such, becomes only one field of the total common learnings of the school.

scope and sequence, the scope being determined by the various topics to be included and the sequence being determined by the order of their study. Under a conventional organization the total curriculum includes the core subjects and the electives. Under an experience concept of education, the total curriculum includes the core or common experiences and the elective activities.

Today the scope of the total curriculum is thought to be as broad as life itself. The expression "Education is life" is characteristic of modern thinking. The school curriculum is becoming a much broader thing than a series of subjects to be studied; consequently, we must find a different manner of determining its scope. Several years ago there was considerable discussion of so-called "areas of experience" as setting the scope of the curriculum. This approach was based upon the following line of reasoning: Our problem in education is to find out those activities or experiences which make up the life of the people and then to develop a school curriculum from these. In general, these experiences were classified under five headings: Vocation, Leisure Time, Home Membership, Health, and Citizenship.

The major-social-functions approach to determining the scope of the core curriculum is a further refinement of this general point of view. Whether or not one accepts the term *social functions*, the philosophy upon which this approach is based is sound. According to this point of view, there are certain basic functions which must be performed by any society if that society is to perpetuate and improve itself and if the individuals within that society are to develop fully. It becomes the purpose of the school, then, to guide the pupils into activities which will provide continual experiencing in the performance of these functions and will lead to better understanding of them. Various teaching groups, studying societies to determine basic functions, have formulated somewhat different statements and not all have used the term *social functions*. However, a close study of city, county, and state programs in which the social-functions approach is utilized discloses a striking similarity of approach, regardless of the terms used. The following statement of "Basic Needs and Functions," which appeared on the Eugene, Oregon, "Tentative Scope and Sequence Chart, Social-Living Area of the Core Curriculum," is representative.

Conserving Human Resources. The term "conserving" as here used means reproducing, developing, and protecting human beings and is a function essential to the perpetuation and improvement of any social order.

Conserving Nonhuman Resources. This includes not only the conserva-

tion of natural resources but of many man-made resources as well. While primitive man was concerned chiefly with the conservation of only a few forms of organic and inorganic materials or forms of life, modern social welfare is concerned with conservation in its many ramifications.

Producing, Distributing, and Consuming Goods and Services. The terms "producing" and "consuming" are used in their everyday meanings, with regard to the satisfaction of basic needs—food, shelter, and clothing. "Distributing" is used here in its economic sense and means the allotment of goods and services rather than the moving of goods.

Expressing and Satisfying Recreational, Aesthetic, and Spiritual Needs. The spiritual, the recreational, and the aesthetic are integral parts of the lives of all peoples; and the development of these functions is essential to social and individual welfare.

Communicating. The members of any social group must have ways and means of communicating if the group is to function as a unit. The development of the ability to write and speak effectively is an important function.

Transporting. The moving of goods and persons is a necessary and increasingly complex function in a modern society.

Governing. Organizing and governing are essential to the performance and satisfying of the other basic functions and needs, and are essential to any well-integrated society.

Educating. The perpetuation and re-creation of a society requires continuous education of the members of the social order in the mores and needs of the group.²

In recent years there has been considerable discussion of the necessity of developing a curriculum based upon the needs of children and youth and upon the needs of the society in which they live. It will be obvious to a person making a critical study of the so-called *social functions* that these constitute a statement of social needs, and can be easily extended to include most individual needs. In 1944, the Educational Policies Commission published *Education for All American Youth*, which included a statement of "Imperative Educational Needs of Youth."³ This statement is incorporated in the 1952 revision of the report entitled *Education for All American Youth, A Further Look*⁴ as listed below:

² Eugene, Oregon, Public Schools, *Core Curriculum of the Eugene Public Schools*.

³ National Education Association of the United States Educational Policies Commission, *Education for All American Youth*, pp. 225-226. Washington, D. C., 1944.

⁴ National Education Association of the United States, Educational Policies Commission *Education for All American Youth, A Further Look*, p. 216. Washington, D. C., 1952.

IMPERATIVE EDUCATIONAL NEEDS OF YOUTH

1. All youth need to develop salable skills and those understandings and attitudes that make the worker an intelligent and productive participant in economic life. To this end, most youth need supervised work experience as well as education in the skills and knowledge of their occupations.
2. All youth need to develop and maintain good health and physical fitness.
3. All youth need to understand the rights and duties of the citizen of a democratic society, and to be diligent and competent in the performance of their obligations as members of the community and citizens of the state and nation.
4. All youth need to understand the significance of the family for the individual and society and the conditions conducive to successful family life.
5. All youth need to know how to purchase and use goods and services intelligently, understanding both the values received by the consumer and the economic consequences of their acts.
6. All youth need to understand the methods of science, the influence of science on human life, and the main scientific facts concerning the nature of the world and of man.
7. All youth need opportunities to develop their capacities to appreciate beauty in literature, art, music, and nature.
8. All youth need to be able to use their leisure time well and to budget it wisely, balancing activities that yield satisfactions to the individual with those that are socially useful.
9. All youth need to develop respect for other persons, to grow in their insight into ethical values and principles, and to be able to live and work co-operatively with others.
10. All youth need to grow in their ability to think rationally, to express their thoughts clearly, and to read and listen with understanding.

A careful study of this statement of needs discloses a striking similarity to the statement of social functions presented on pages 194-195. This statement of needs probably is more usable than the statement of social functions as a basis for the school curriculum, for it is more easily understood by the average teacher and parent. It should be realized, however, that these two statements are only different ways of expressing essentially the same concept of the basis of the curriculum of the modern elementary and secondary schools. This concept is far removed from the philosophy that the curriculum consists primarily of a given body of subject matter and that the chief purpose of the school is to make sure that the pupils master this subject matter.

The aims of education are now being stated rather specifically as lines of desired pupil growth. A point which curriculum groups often fail to realize is that these aims grow directly out of the scope of the curriculum and are quite definite statements of those understandings, attitudes, appreciations, and abilities essential to the performance of the major social functions and to the satisfaction of basic human needs in this particular society. Every social group, whether primitive or highly industrialized, and regardless of location, must perform certain functions, such as producing needed goods and services, transporting, and all the others suggested above. But the specific manner in which these functions will be performed and the particular individual learnings essential to such performance differ greatly from society to society. Every society, for instance, must develop ways and means of transporting goods and persons, but the way in which this must be done to meet the needs for a city like New York differs greatly from the method necessary to supply the needs of the peoples of the interior of Africa. The attitudes essential to production under a communistic dictatorship will differ and must differ from those desired under a capitalistic organization.

Many good statements of the aims of education have been developed in recent years. While these differ in organization and in specific points of emphasis, they are very similar in actual content. Probably the best-known statement—one which is usable and understandable—was developed by the Educational Policies Commission and published under the title *The Purposes of Education in American Democracy*.⁵

THE OBJECTIVES OF SELF-REALIZATION

The Inquiring Mind. The educated person has an appetite for learning.

Speech. The educated person can speak the mother tongue clearly.

Reading. The educated person reads the mother tongue efficiently.

Writing. The educated person writes the mother tongue effectively.

Number. The educated person solves his problems of counting and calculating.

Sight and Hearing. The educated person is skilled in listening and observing.

Health Knowledge. The educated person understands the basic facts concerning health and disease.

Health Habits. The educated person protects his own health and that of his dependents.

Public Health. The educated person works to improve the health of the community.

⁵ National Education Association of the United States, Educational Policies Commission, *The Purposes of Education in American Democracy*. Washington, D. C., 1938.

Recreation. The educated person is participant and spectator in many sports and other pastimes.

Intellectual Interests. The educated person has mental resources for the use of leisure.

Aesthetic Interests. The educated person appreciates beauty.

Character. The educated person gives responsible direction to his own life.

THE OBJECTIVES OF HUMAN RELATIONSHIP

Respect for Humanity. The educated person puts human relationships first.

Friendships. The educated person enjoys a rich, sincere, and varied social life.

Co-operation. The educated person can work and play with others.

Courtesy. The educated person observes the amenities of social behavior.

Appreciation of the Home. The educated person appreciates the family as a social institution.

Conservation of the Home. The educated person conserves family ideals.

Homemaking. The educated person is skilled in homemaking.

Democracy in the Home. The educated person maintains democratic family relationships.

THE OBJECTIVES OF ECONOMIC EFFICIENCY

Work. The educated producer knows the satisfaction of good workmanship.

Occupational Information. The educated producer understands the requirements and opportunities for various jobs.

Occupational Choice. The educated producer has *selected* his occupation.

Occupational Efficiency. The educated producer succeeds in his chosen vocation.

Occupational Adjustment. The educated producer maintains and improves his efficiency.

Occupational Appreciation. The educated producer appreciates the social value of his work.

Personal Economics. The educated consumer plans the economics of his own life.

Consumer Judgment. The educated consumer develops standards for guiding his expenditures.

Efficiency in Buying. The educated consumer is an informed and skillful buyer.

Consumer Protection. The educated consumer takes appropriate measures to safeguard his interests.

THE OBJECTIVES OF CIVIC RESPONSIBILITY

Social Justice. The educated citizen is sensitive to the disparities of human circumstance.

Social Activity. The educated citizen acts to correct unsatisfactory conditions.

Social Understanding. The educated citizen seeks to understand social structures and social processes.

Critical Judgment. The educated citizen has defenses against propaganda.

Tolerance. The educated citizen respects honest differences of opinion.

Conservation. The educated citizen has a regard for the nation's resources.

Social Applications of Science. The educated citizen measures scientific advance by its contribution to the general welfare.

World Citizenship. The educated citizen is a co-operating member of the world community.

Law Observance. The educated citizen respects the law.

Economic Literacy. The educated citizen is economically literate.

Political Citizenship. The educated citizen accepts his civic duties.

Devotion to Democracy. The educated citizen acts upon an unswerving loyalty to democratic ideals.

If a curriculum is to be well articulated and if planned pupil growth along desired lines is to be obtained, the curriculum should be organized with rather definite suggestions for sequence as well as for scope of experiences. Whether some modification of the older subject fields should be made or the old organization discarded completely is open to considerable argument. There are many who would develop a completely integrative type of curriculum wherein all the learning experiences of the school day are developed around large centers of interest. Others would hold to the old subjects and terminology but develop more of the activity type of learning within those separate fields. Probably the most practical approach, considering our present buildings and equipment and the attitudes of our teachers and communities, lies somewhere between these extremes. A number of schools, consequently, are organizing their curriculums into what are often termed "broad fields of learning." Sequences of learning experiences are then suggested for each of these fields. At present there is a much greater degree of actual fusion at the elementary level than at the secondary level, with many elementary schools devoting from one-fourth to one-half of the day to the activities of the major unit of work, and the remainder to activities in special areas. Many primary and intermediate teachers advocate devoting a large portion of the day to unit activities.

In the later thirties, the city of Eugene, Oregon, reorganized its curriculum so that the core curriculum was broken up into five broad fields, described as follows:

ORGANIZATION OF THE CORE CURRICULUM

In developing a modern curriculum it is necessary to work out a type of organization making possible an experience approach to education. Two possibilities seem to present themselves. The conventional subject-matter areas may be maintained, but with the emphasis upon guiding pupil activities rather than teaching the particular subject. The other possibility, advocated by some extreme progressive educators, is that of breaking completely away from subject-matter areas and terminology, and developing the total curriculum as a sequence of major integrative units growing out of life situations and extending throughout the school life of the individual.

Factors such as inadequate buildings and equipment, the attitude of the community, the state course of study requirements, and especially the factor of teacher education make some position in between these extremes necessary and desirable. No matter how willing teachers are to improve their teaching, any great modification of classroom procedure must result from growth through experiencing over a period of years rather than through mastering a new technique and applying it. Above all, the modern curriculum is based upon the acceptance of changed points of view in philosophy and the psychology of learning rather than upon any special procedure which can be mastered and applied. One cannot suddenly jump from established ways of thinking and doing to something greatly different. Consequently, the organization adopted represents a "pegging in" somewhere between the two extremes. This organization should make possible the development of an experience curriculum during the coming decade and yet is not so radically different in organization and terminology as to result in teacher confusion or organized community opposition.

The plan sets up learning areas not too far removed, so far as terminology is concerned, from the subject-matter organization of the past. In the elementary school, where teacher preparation and school organization make it possible, a considerable portion of the pupil's day will be devoted to activities growing out of the major units of work of the social-living area of the core. As the pupils progress from grade to grade other areas emerge from the social-living area and are organized separately. . . .

The areas of the core curriculum are as follows:

Social-Living Area of the Core. This is the central and constant part of the curriculum. It is organized as a sequence of major units of work and draws heavily upon all of the other areas as desired. This area includes what has

usually been thought of as the social studies, guidance, and much of the language arts. It consumes from one-third to one-half of the pupil's time during the elementary years, two hours daily in grades seven through ten, and one hour in grades eleven and twelve.

Science Area. This area is fused with the social-living area through the seventh grade. A three-year sequence of general science is being developed and will be required in the secondary schools through grades eight, nine, and ten.

Mathematics Area. This area is fused with the social-living area in the primary school and is being developed as a six-year sequence of social mathematics in grades four through nine inclusive.

Homemaking and Industrial Arts Area. This area is fused with the social-living area during the elementary years. A sequence of two or three years is being developed for the secondary years.

Recreation and Aesthetic Area. This is hardly a separate area, but, rather, includes several closely related types of experiences, some of which are also important parts of other areas. Physical education, including much of what is called health education, is a constant throughout the school and is organized as a separate area above the primary grades. Music, the arts and crafts, literature, drama, and rhythmic activities appear at intervals as separately guided activities and yet are integral parts of the social-living area at most points.

ELECTIVES IN THE CURRICULUM

The school curriculum consists of the core or common elements and the elective activities. The elective area includes all those pupil experiences not included in the core. Activities which may be of high degree of interest and value to many or few of the pupils, but which are not required of all, are electives rather than core. Highly specialized courses in mathematics, science, music, social studies, literature, the foreign languages, etc., as well as many special club and athletic activities, are elective. Most of the activities of the elementary and junior high school are core activities, with increased opportunities for electives being offered at the secondary level. Approximately half of the pupil's time in the senior high school is devoted to core activities.⁶

In many school systems that are attempting to develop a more functional approach to education, a large portion of the elementary school day is devoted to activities growing out of the major unit of work. These activities cut across conventional subject-matter lines at will and are integrative in character. A sequence of experiences usually is suggested for the social-living area of the core for the various levels of the

⁶ Eugene, Oregon, Public Schools. *Core Curriculum of the Eugene Public Schools.*

elementary and secondary schools in order that growth will be continuous, that activities will be rich and varied, and that repetition of units will be prevented. While the units of any given year are developed within a field, each experience field is broad enough to allow the teacher and the children ample leeway in the selection of the particular units which will become their centers of interest for the year.

The term *social living* is used rather frequently in this book. While not yet generally accepted, the term is being used in some cases in lieu of "social studies," but with a much broader meaning, as in the Eugene curriculum, in which the social-living area of the core curriculum at the secondary level is a fusion of what was language arts, social studies, and guidance. At the elementary level the social-living area is much broader than this, drawing at will on practically all the conventional areas of the curriculum for materials for the experiences of the major units of work.

There is disagreement in educational circles as to the extent to which traditional subject areas should lose their identities as such and become fused with the social-living units. While a few schools with modern equipment and exceptionally well-educated staffs may safely develop a program of almost complete fusion, it is doubtful if the majority of schools should give up all special instruction in the so-called fundamentals. Certainly much reading, writing, spelling, and arithmetic should be integral parts of the units of work, but it is improbable that we have yet reached a stage of development where their elimination as areas for special consideration can be safely achieved.

It can be argued also that complete fusion of all activities is not to be desired. Certainly in the fields of music, literature, and recreation there are opportunities for worth-while experiencing totally unrelated to the activities of the unit engaging the major attention of the class. The best path probably lies somewhere between complete fusion on the one hand and a high degree of compartmentalization on the other. The activities of the major units of the social-living area of the core curriculum should cut indiscriminately across all areas of the curriculum as the occasion demands, but there is still room and need for stimulating many activities unrelated to the theme of these units of work.

DEVELOPING AN EXPERIENCE CURRICULUM WITHIN CONVENTIONAL SUBJECT AREAS

The majority of teachers for some years to come will be in teaching situations in which the curriculum is still organized along more or less traditional lines and will find themselves teaching

in conventional subject areas. In most instances, however, hard-and-fast subject-matter divisions have been broken down or are being broken down. The social-studies work for the year generally can be organized around major units of work similar to those presented in Chapters 3, 4, and 5. The field of American history offers possibilities for several excellent units of work in the upper grades, as does the subject of geography. If it is possible to fuse these two subjects, it should be done. Many school systems have already accomplished this and have suggested major units of work for each year of school. Such units as "The Post Office," "The Grocery Store," "The Home," "Trains," and "The Dairy" make excellent centers around which to develop the primary social-living experiences, while "Food," "Clothing," "Indians," "Transportation," "Living in Colonial America," "Westward Expansion," "Cities," "Living in the Orient," "Coal and Iron," "Power," and many other similar units make possible the development of a real-life curriculum within conventional subject-matter areas in the intermediate and upper grades.

MATERIALS OF INSTRUCTION

Changed Concept of the Nature of Subject Matter.

There has been great modification of the concept of subject matter in recent decades and of its place in the classroom curriculum. One does not have to go back too far into educational history to find that subject matter was once considered an end in itself, and this subject-mastery concept of education has not entirely disappeared from the school of today. The changed concept of the nature of subject matter was discussed in Chapter 2 and was illustrated in Chapter 1 by the descriptions of the two teachers at work. It is sufficient at this point to re-emphasize the fact that subject matter consists of the total resources which are at hand or can be obtained. The subject matter for any particular unit consists of all obtainable resources needed to solve the problems of the unit and to carry on other learning activities. It consists of the materials with which we work in order to obtain pupil growth along desired lines. It is not an end in itself; but it is certainly a means without which the aims of education cannot be achieved.

Importance of Subject Matter. Modern teaching does not relegate subject matter to a minor role in the educational process. In fact, much more rather than less subject matter is needed in the classroom—the paucity of subject matter is one of the chief hindrances to effective education in many school situations. It is obvious, for instance, that Miss Patterson and her class will be able to carry on the suggested learn-

ing activities of the unit "Industries of the Community" only as they can find materials with which to work, only if they can utilize fully the resources of the whole community. This unit could not possibly be developed through the use of a single textbook, no matter how good the book. Satisfactory achievement can come only through the reading of many books, pamphlets, and magazines; through the full use of films, models, and exhibits; through visits to the industrial resources of the community itself—industrial plants, farms, business establishments, and the people who live and work there.

Expanded Use of Subject Matter. It has often been said that there is no substitute for direct experience in learning. This is another way of saying that direct experience is reality itself. A person may read about the Grand Canyon, he may see photographs of it and motion pictures portraying it, and, through these vicarious experiences, may learn a great deal about it. He may add to his learnings through discussions with others who have studied the Grand Canyon or have been fortunate enough to see it. As a result of using these instructional materials, he may be able to discuss its origin intelligently, and he may understand much of its geology. If, however, he can spend several days at the Canyon, taking trips to its floor and along its brim, he will add materially to his appreciation of this wonder of nature and to the development of concepts which can come only through direct experience.

It can be argued that one may live for years within walking distance of the Canyon and still be ignorant of its geology and geography. This merely illustrates the principle that the most effective learning comes from the utilization of many kinds of resources rather than a few. Other things being equal, the child who has read and enjoyed books written about the Grand Canyon, has studied scientific writings about it, has seen photos and motion pictures of it, and has spent time in exploring it will learn the most about this natural phenomenon.

Instructional materials, as implied above, fall into three general categories. There is reality itself—for instance, the Grand Canyon and the actual exploration of it. There are faithful representations of reality—photos, motion pictures, and television. Then there are symbols of reality—the written and the spoken word, maps, graphs, and diagrams. All have their place in teaching. It is foolish to argue about which is the most important, for any one of them, when employed alone, loses a great deal of its effectiveness.

Textbooks, Workbooks, and Other Published Materials. The kinds of published materials needed to carry on the learning activities of a class are determined by the nature of the activities themselves and the purposes of the group. Certainly textbooks and workbooks no longer

determine the aims of the curriculum, nor do they set the tasks of the modern teacher and his class. On the other hand, the school could not reach its goals without a wealth of printed materials, including textbooks and workbooks. In the modern curriculum textbooks and workbooks contribute to the aims of education instead of becoming ends in themselves. Workbooks can be of invaluable help to a teacher attempting to individualize the teaching of arithmetic in the intermediate and upper grades, provided that these workbooks are developed with this purpose in mind rather than as mere supplements to specific arithmetic texts. In like manner, workbooks can be helpful in furnishing practice in language usage and spelling. A reading textbook which provides a steady progression in the development of a reading vocabulary is considered of value by most teachers. Its use does not commit the teacher to a lock-step method of teaching, nor need it result in repetition of the same stories day after day. A teacher who has an adequate understanding of the teaching and learning process can use with profit a reading series along with other materials, adjusting the reading to the abilities of the children of the grade. She may, for instance, divide a fifth-grade class into groups, each group being made up of children of approximately the same reading level. One group may use the third- or fourth-grade textbook of the reading series, supplemented by other reading materials. Another group may read chiefly from the fifth-grade book, while the advanced groups may read from the sixth- and seventh-grade books. At no time during reading instruction would all children of the grade be expected to read from the same book.

So long as there is thought to be a need of systematic instruction in certain areas such as reading, spelling, arithmetic, and language usage, there is a need for systematically prepared materials. If these materials are used by teachers who are primarily concerned with guiding the development of children rather than with teaching subjects as such, they serve a useful purpose in education.

There are many learning situations in which textbooks cannot constitute the major source of information; indeed some situations require no printed materials at all with which to work. The unit on "Weather," described in Chapter 4, required a wealth of instructional materials—books, pamphlets, weather maps, and reports. In addition, weather instruments and construction materials of various kinds were needed. But there is no single text which provides all the information needed for a unit of this kind; nor could there be one, since much of the material must be current in nature to be of value. A well-planned book on "Weather and Climate" written simply for elementary children would have been of value in this unit. It could not, however, have replaced

the weather reports and maps; nor could the study of this book have substituted for the building and operating of the weather station, the many excursions, or the creative activities so essential to the permanent learnings of the unit. The children could have studied about weather from a book, but that alone would have made the learnings academic in nature and of doubtful permanency. On the other hand, reading was of great value in carrying on many of the activities of the unit—in fact, it often made the difference between their success and failure.

Audio-visual Materials. Good teachers always have made use of audio-visual materials. They have used the phonograph and the radio for a long time. Blackboards, models, mock-ups, graphs, slides, film strips, and motion pictures have been in general use for many years. Television and the tape recorder are becoming essential educational equipment. Instruction in the use of projectors, tape and other recorders, and experience in making graphs, models, slides, and other visual aids are now integral parts of good teacher-education programs. The ability to obtain and use the many kinds of instructional materials and equipment and to make various aids to the learning process—slides and graphs, for instance—is an important aim of professional education. Much of this learning must come from experience in an audio-visual laboratory and from actual use of audio-visual materials and equipment in teaching situations. Principles concerning their use, however, can be presented in a book on general teaching procedures. Some of these principles are the following:

1. *The manner in which an audio or visual aid is used must be dictated by the purpose of the class and teacher.* There is no one right way to use a film, a recording, a set of slides, the radio, or the tape recorder; but, rather, the way in which these materials and equipment are used must be determined by what one wishes to accomplish. A class using a recording of an inaugural address as an illustration of effective speech may play the recording over several times, with discussions between playings; or the pupils may be interested in hearing again only certain parts which illustrate particular points with which they are concerned. In another class, a committee interested in the personality of the president may use the recording to illustrate one aspect of the man's total personality. They may, consequently, play it only once to the class, but with a carefully prepared introduction.

Again, a film used primarily for purposes of entertainment, even though of an educational nature, would be shown only once, with little or no advance preparation; while a film being used by a class to demonstrate certain scientific facts and principles might be viewed a number of times over a period of several days or weeks.

2. *Aids to instruction must not operate as a substitute for reality.* For instance, slides and films on the steel industry or on agriculture used in the development of the unit "Industries of the Community" should not be used in lieu of excursions to industrial plants, farms, and experimental stations. Audo-visual aids may be used in advance preparation to make the field trip more meaningful, or they may be used following a field trip to supplement and clarify; they should not displace the field trip. Nor should a film of an experiment in soil conservation or water purification be considered an acceptable substitute for actual experimentation by the class. It must be kept in mind that research ability cannot be developed by seeing films of persons engaged in research, or by hearing about it. Actual experience in research is necessary to develop research ability.

3. *Pupils should be encouraged to make many their own aids to instruction.* The making of a graph showing agricultural production of the county, for instance, is of great value. Pupils themselves have gathered the data; they have wrestled with the problem of how to present these data to the class as a whole. The experience of making a physical map of the region to show plans for a flood-control project is a much more meaningful one than that of studying a map furnished by the county engineer. Collecting moths is far more educational to the student than would be the study of a collection made by the teacher, although the latter activity has its value.

4. *Audio-visual aids should be used to fill a need and should be used at the time this need is felt.* In general, such aids should not be scheduled by someone outside the classroom; nor should they be scheduled except when they are needed. In illustration of the above principle, it is not desirable for a city or county superintendent to schedule the showing of an educational film among the several schools of the city or county using the film in conjunction with a classroom project or unit. Even the teacher cannot know very far in advance just when a particular film will fit into the activities of a unit. It is recognized that the film supply is so inadequate in most teaching situations that advance scheduling must often be done by the teacher to make sure that the class will have the film sometime during the life of a unit. This scheduling sometimes must be several weeks or even months in advance. It is seldom, however, that the film can be used effectively under these conditions. It may come before it is needed, or it may come so late that its showing is an anticlimax. Of course films that are not tied in with a particular unit or project, that can be used independently of on-going activities, can be satisfactorily scheduled well in advance of their showing.

5. *Audio-visual aids should normally be utilized by the pupils themselves.* The teacher will, of course, use these aids continually in her presentations to the class; but she must understand the value of pupil use of such aids. Films, slides, film strips, and recordings should be utilized by the pupils themselves in presenting ideas to others or in gaining better understandings. Films, slides, models, and other aids to learning often are procured by a committee of the class to help the members of the committee in the study of their particular problem and may or may not be used before the class as a whole. Teachers and principals need to dispense with the idea that just because a film is available it must be viewed by relatively large numbers in order to justify its procurement.

6. *Pupils should participate actively in the procurement of audio-visual aids to instruction.* An important aim of education is the development of the ability to find and obtain reading materials and other materials necessary in problem solving and in the presentation of one's ideas to others. This aim can be accomplished only as the children search for and procure aids to the learning process. It is, of course, necessary to have a large amount of materials of instruction on hand at the beginning of a unit; otherwise, the unit may "bog down" for the very lack of these materials. On the other hand, the teacher should not have done such a good job of procurement that there is little for the pupils to do except obtain these materials from the library or the classroom shelves. This principle applies to all learning situations of a problem-solving or reporting nature, not alone to the activities of an experience unit.

7. *In general, each classroom should be equipped so that the use of audio-visual aids is facilitated.* Convenient electrical outlets and provisions for darkening the room are minimum essentials for every room. Classrooms should be equipped with permanent screens for showing films and slides, and it should not be necessary to bring in a projection table every time projectors are to be used.

There is disagreement about the desirability of special projection rooms in an elementary school. If space is readily available, such a room is a great convenience, as it provides a place where committees may go to view a film or work with a recorder without disturbing other members of the class. Also, it often eliminates the need for carrying a projector to the classroom, and makes it unnecessary to rearrange seatings for the showing. If the room is used to supplement classroom use of audio-visual aids, it is desirable; but it should be so used and not thought of as the place to which the class goes to see films and slides.

8. *Audio-visual materials and equipment often may be used for evalu-*

ative purposes. For instance, a recording of a pupil's report made at the beginning of the year may be compared with a recording made at the close of the year to study his progress in oral reporting. Tape recordings may be used by pupils to study their own voices and peculiarities of expression and, likewise, as a means of measuring progress. Slides, graphs, or models prepared by committees or individuals for reporting purposes are helpful to the teacher and class in evaluating the learnings of the pupils.

9. *The elementary-school library should be an instructional-materials library, not just a reading-materials library.* The librarian, whether full- or part-time, should be as much concerned with helping teachers and pupils find pertinent films, slides, and recordings as with finding materials to read; and he should make provisions for obtaining and storing these materials. Film and recording catalogs should be available, and up-to-date listings of free and inexpensive instructional materials should be procured for teacher and pupil use.

SUBJECT MATTER IN THE EXPERIENCE CURRICULUM

Some time ago the writer had occasion to suggest to a teacher of social studies that he develop his work around certain integrative themes organized as units of work and utilize the library to a large extent. The answer received was, "How in the world can you expect the pupils to do a lot of library reading when we will have to work extra hard as it is to get the textbook covered by the end of the term?" In suggesting to groups of primary teachers that, after all, rich pupil experiencing is of much greater importance than any particular materials to be covered, this objection is often met: "But what about the course of study? How can we do the things you suggest and still see that all the children meet the requirements of the course of study?" The point of view expressed in these replies represents a philosophy of education that is rapidly being abandoned in favor of a philosophy more in harmony with child nature and the needs of society. More and more it is realized that the whole body of important subject matter is so vast that the child, during his school life, can learn only a very small part of it at best. Much is included in the conventional courses of study simply because of tradition. This does not necessarily mean that such subject matter is of no value or that it must be eliminated. Much of it is of little value in contributing to the aims of education, however, compared with many highly functional learning activities which make up the curriculum of the modern school.

As has already been suggested, the philosophy that is replacing the subject-matter-to-be-covered point of view is this: That child is best educated who has experienced most widely, most deeply, and in the most worth-while manner. This is the philosophy upon which the experience curriculum is based. There is a growing realization that basic understandings and the other desired outcomes of education are developed only as the child's experiences are prolonged and enriched.

As an illustration, consider the teaching of geography in the past. We have insisted that the children cover practically the whole world by the end of the elementary grades. The result has been little basic understanding of any civilization and only slight development of desired attitudes and appreciations. It was felt that all sections of the world must be studied in a logical manner, so pupils were rushed from one country to another, doing little more than studying the materials contained in their geographies, which in practically all cases were very meager. Think back over your own experiences in studying Mexico in the grade school, for example. You may recall learning a little about the physical features of the country; a few paragraphs of history; the important cities, together with the reasons for their importance; something about the climate, the regions, the products, and the industries of the country; and possibly a little about the peoples themselves. All in all, from two to three weeks may have been spent in this study, if time was not too pressing. At the end, you had learned a number of facts about Mexico and had added somewhat to your understanding of the effect of geographical conditions upon the lives and industries of the Mexican peoples; but this was all done in a detached manner. It was studying *about* Mexico rather than experiencing and living life in Mexico. The experiences of the children in a school today, working with the unit "Living in Mexico," are quite different. The unit may last several months, consuming a much greater part of each school day than the old geography class did. Through their construction and art activities, the pupils will bring the atmosphere of Mexico into the classroom. Through their dramatic play, they will enter into the life and culture of the Mexican people, learning some of their songs and dances and language. They will be concerned with the ways in which the Mexicans of different classes and regions gain the necessities of life; why they build, work, play, and create as they do; what their schools and churches are like; how they run their communities; how they are solving the innumerable problems of living. They will utilize audio-visual materials, references, texts, and all the resources of the libraries and other agencies of the community to gain the information needed to carry on their various activities. Such appreciations of

Mexican culture are not to be gained through a hurried study of a text, but only as the child has direct experiences through research, dramatic play, creative and appreciative activities in the areas of music, art, literature, and rhythm, and other activities of the experience curriculum.

A vital factor in such an approach to the study of geography is the manner in which the activities of the unit are guided so that they contribute to the desired outcomes of education in general. The teacher is concerned not only with what the children learn about a country but even more with the extent to which the children grow in their understanding of social and scientific problems in general; in their abilities to work and play in a co-operative, willing manner; in their ability to utilize the library and other sources for needed information; in their appreciations of music, art, literature, and nature; and in their all-round growth toward the desired goals of education. There is more concern with the experiences of the children—how they are learning—than with the particular subject matter with which they are working. However, it is well to emphasize the fact that far more subject matter will be required under such an approach than was ever necessary in the older approach to the teaching of geography.

THE COMMUNITY SCHOOL

Capacity for social living grows from the whole school and community situation, not from one or two areas alone. We have often considered the social-studies area as having great possibilities for contributing to the development of good citizenship, and this is true also of the total school curriculum. The child becomes a good citizen only as he experiences situations in which he acts in a socially approved manner. If the whole school situation is such that the child is actively participating in activities conducive to the development of desirable ways of thinking and acting in a democratic social order, he will become a good citizen.

The need for having the school become an integral part of the community cannot be emphasized too strongly. After all, education can become more effective only as the school, the home, and the community function as one. Not only must the school expand into the community, but the community must be brought more and more into the educational activities of the school. The utilization of the total resources of the community as the materials for the curriculum is a step in the right direction. Working alone, the school cannot be very effective in the education of the whole child. It must recognize that at best it is only one of the forces that make a child what he is and what he will become.

Educators can, however, and should take the initiative in bringing school and community together in a planned educational program, so that what is now called "a community school" becomes one in reality.

PROBLEMS FOR STUDY AND DISCUSSION

1. Many teachers argue that the modern school has "thrown subject matter overboard." Others claim that the library is the heart of the modern school curriculum. Explain these seemingly contradictory points of view.
2. There is much discussion of personal and social integration in educational circles. Explain the concepts involved and the implications for teaching.
3. Principal C maintains that the school's responsibility, professional as well as legal, starts when the child arrives on the school grounds and ceases when the child leaves for home in the afternoon. Can this position be accepted if the school is seriously attempting to be guided in its work by the aims of education as outlined by the Educational Policies Commission and other present-day curriculum groups? Justify your stand.
4. Make a study of the activities of living in your community. Do these tend to group themselves into activities following subject-matter lines? Do they seem to grow out of functions to be performed or needs to be met? Can you make out a good case for the teaching of the conventional subjects if you believe that the vital life problems should provide the stimulus for the school learning situations? Defend your answers.

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9 · Living in a World of Science

IMPORTANCE OF SCIENCE EXPERIENCES

A number of years ago the author was discussing the treatment of burns with a group of Mexican boys who were members of a junior high school Boy Scout troop. One of the boys said that he knew an old lady in the Mexican village who healed burns by saying some magic words over them. When doubt was expressed as to the effectiveness of this method, the author was surprised to find several of the group ready to defend the contention. Two of the boys told of having been burned as children and of having the old woman come and treat them. They insisted that she said some magic words over the burns, that they soon went to sleep, and that when they awoke the burns did not hurt much. Another said that his little sister had had a burn healed that way just a few days ago. When the boy was asked to describe the treatment fully, he said that the old lady had the little girl lie down; then she bent over the burn on the child's arm and blew on it softly, chanting some magic words as she did so. After a while the child went to sleep. The old lady then put some grease on the burn, and it didn't hurt very much when the child awoke. The boys were then asked if they had ever tried blowing on a burn to cool it and make the pain stop and if they did not think it possible that the blowing on the burn relieved the pain and that the chanting resulted in the child's going to sleep. They agreed that this might be the case. The questioner had the feeling, however, that the boys still felt that magic had played a great part in the cures, even though none of the boys had ever seen a badly burned child cured by this method.

Recent years have seen a greatly increased emphasis upon science learnings in the elementary school, and all reputable teacher-education institutions have made science education a major part of the curriculum for elementary teachers. It is unfortunate, however, that there still are many teachers of elementary school children who are woefully uninformed in the science area of the curriculum. Many of these teachers received their training a number of years ago when science requirements

were inadequate, and have not made up for this deficiency by subsequent study; others received substandard training and were given temporary certification to meet emergency needs. Some states still allow regular certification based upon training periods entirely too short for the professional and general educational development of teachers. When teachers are poorly informed in the principles and facts of science, they must follow textbooks quite slavishly; they must teach science by academic methods rather than by giving the children rich experiences in this field.

There is little need to point out the importance of science experiences in the elementary curriculum. Most aspects of modern living are directly affected by scientific discoveries; many of our ways of living are being revolutionized. The discoveries and inventions of the modern age—supersonic speeds in transportation, television, revolutionary discoveries in food production, "miracle drugs," and atomic power—are facts of today's living, not Buck Rogers dreams. If an individual is not reasonably well-informed in the field of science, he cannot be an intelligent citizen. He cannot perform the duties of citizenship effectively, for so many of his decisions, even in voting, are affected by his understanding of the happenings of science.

SCIENCE EXPERIENCES AND THE AIMS OF EDUCATION

A careful study of the aims of education presented in Chapter 8 will convince one that if adequate child growth along these desired lines is to be obtained, there must be a great emphasis upon pupil experiences in the science area. Very few of the characteristics of the educated person described in the statement of objectives by the Educational Policies Commission (pages 197 to 199) can be attained without such emphasis. Let us consider one of "The Objectives of Self-realization," listed as follows:

Health Knowledge. The educated person understands the basic facts concerning health and disease.

In the discussion of this objective the following statement points out its significance for the development of science learnings:

For the educated person the first requirement in the field of health is an inoculation against superstition, voodoo, witchcraft, and humbug in the fields of medicine and human biology. The best serum now available for this

purpose is scientific knowledge concerning the human mind and body as a functioning organism. Thus protected, the educated person looks with sturdy skepticism on the claims of the makers of patent medicines for the ills of the body and the appeals of the large tribe of pseudo-psychologists who claim to minister to the mind diseased.¹

There is hardly one of the objectives which does not depend upon science learnings to some degree, just as there are few if any forms of human behavior which are not affected by the nature of the physical and biological world in which the learner lives. Science is an integral part of the child's world. Wise guidance on the part of the school will lead the pupils to an intelligent understanding of science and its relation to social and individual welfare, and will hasten the day when our social, economic, and political institutions and mores keep pace with scientific advancement, a condition now far from being attained.

What are the concepts, attitudes, appreciations, and abilities of a scientific nature which form the basis of the science area of the elementary curriculum, and which should guide the teacher as a leader of pupil learning experiences? It is stated in Chapter 8 that the aims of education grow out of the scope of education; that is, they are those lines of pupil growth necessary to effective performance of the essential functions of living in a particular social order. The aims of education, then, are the aims of science teaching. Statements of aims are quite general in nature, however, and must be broken down in order to give adequate guidance in the various fields of pupil experience. For instance, the attainment of the basic aim of health knowledge referred to above requires the development by the learner of a number of scientific concepts regarding the nature of the human organism and the way it functions. Further, it requires a knowledge of microbes, immunization, and numerous other scientific learnings related to the welfare of the human body.

An excellent statement of the objectives of science instruction was developed by the Committee on Science Education in American Schools, of the National Society for the Study of Education.² This analysis of aims is in harmony with the statement of purposes of education developed by the Educational Policies Commission. Before any statement is accepted for classroom use, however, it should receive careful study by the teacher and the school. It is not suggested here that an

¹ National Education Association of the United States, *Educational Policies Commission, The Purposes of Education in American Democracy*, p. 60. Washington, D. C., 1938.

² See National Society for the Study of Education, *Forty-sixth Yearbook: Science Education in American Schools*. Part I. The University of Chicago Press, Chicago, 1947. Pages 19-40.

original statement of aims be developed by each school, but rather that the better statements of aims be studied and discussed in detail, so that the one adopted will represent the aims of the teachers and of the school concerned and not be merely a non-functioning statement bearing little relation to the classroom teaching, as is so often the result when some list of aims is handed down from above or is adopted with little thought.

SCIENCE AND PUPIL INTEREST

Several years ago a young lady of five years came rushing home excitedly from kindergarten and exclaimed, "Oh, Mother, we got to see the little rabbits be borned!" For days the children had been waiting for the big event. They had listened with eagerness as the teacher had explained that the pet rabbit which she had brought to school was a mother rabbit and that inside the mother a very wonderful process was going on, with little rabbits growing and developing, who would be born in a soft, warm nest made from the mother's fur when they were old enough to live by themselves in the open air. The children were intensely interested, and each morning they peeked in to see if the great event had taken place. When the nest was made the children could hardly be restrained, and when the little rabbits arrived one morning before their very eyes, they were excited indeed.

Are children interested in the world of science in which they are living? Any parent who has made a serious attempt to answer the thousand and one questions fired at him by the preschool or primary child knows that children are curious about everything around them. "What makes the flowers bloom?" "What keeps the airplane up?" "Where do birds come from?" "How can fish live in water?" "What happens when someone dies?" "What are stars and the sun and the moon?" "Why does it get hot in summer and cold in winter?" "What do they use the different kinds of railroad cars for?" These and countless other questions are evidence of their real interest in finding out about the common, everyday things of the world. Such questions can guide us to the materials out of which an experience curriculum, rich in science learnings, will develop.

There is a difference of opinion about the permanency of children's interests. Some psychologists have insisted that the interest span of the young child is very short. Many teachers and writers today suggest that children's interests are quite temporary and variable. This may be true if one is thinking of the number of minutes a child can be kept busy on a given task without change, yet children working on a unit on weather (see pages 68 to 119) have maintained a high degree of

interest in weather and climate for over four months, and first-grade children working on a transportation unit have been observed constructing and playing with trains, cars, and airplanes for several months with increasing interest. It is probably true that one cannot keep a second-grade child drilling effectively on arithmetic combinations or a list of spelling words for many minutes at a time without loss of interest. In many such instances there has been little if any real interest in the thing itself from the beginning. Eighth graders may tire after a half hour spent in trying to pick out the important events and dates in Cleveland's administration; yet many of the same eighth graders will spend hours at a time trying to perfect gliders that will fly or in firsthand observation and exploration of the mysteries of ocean or desert life. Too often data on interest and attention have been derived from very narrowly conceived psychological experiments, such as pencil tapping and memorization of nonsense syllables, and too seldom from observation of behavior in normal-life situations. Real-life situations are filled with so many varying factors that an interest in birds, for instance, may be lifelong, beginning with the two-year-old's fascination by the canary or the baby chicken. The same child as a third grader, however, probably would not be at all interested in spending many minutes at a time trying to memorize the names of various species of birds from a classification chart. An interest in birds and the way they live is one thing; an interest in a formal study of pictures is a quite different thing; yet we have often judged the span and scope of children's interests by their application to formal tasks in which real interest was lacking from the start.

HEALTHFUL LIVING AND SCIENCE

Try as one may, health experiencing cannot be separated from science experiencing because both are integral parts of the same whole—a living, functioning organism. Scientific concepts are the basis of health concepts. Health-giving activities have scientific explanations. For example, a public health program is dependent upon having the members of a community understand scientific concepts and develop some degree of scientific thinking. The recreation program of the school and community is greatly affected by the community's understanding of the relationship between wholesome recreation and good physical and mental health. The physical conditions of a school plant are determined in no small degree by the school board's understanding of the necessity of proper light and ventilation and the effect of physical surroundings upon the general attitude and health of pupils and teachers.

Any athletic program should be developed in strict harmony with known principles of bodily development, and it should contribute to a better understanding of the bodily functions.

At this point the teacher should be cautioned against thinking that science is trying to absorb health education or that health education is taking over science. Both of these phases of learning are parts of a larger whole, that of complete living as members of a social order. They should not be thought of as separate entities, even though they are discussed separately. In reality, this discussion is nothing more nor less than a continuation of Chapter 8, separated only for the sake of convenience of organization. Teachers need to divorce themselves from the idea that they are teaching subjects and think of themselves as *guiding the all-round development of children*. Real-life experiences are not segregated into arithmetic, spelling, writing, science, health, art, music, reading, and the other subjects which have made up the conventional curriculum. There will be times when we are interested primarily either in diet or in the causes of seasons, to the exclusion of the other. A change of interest, however, should not be dictated by the ringing of a bell to signify that the health period is now over and the science period is starting.

GUIDING SCIENCE EXPERIENCES

It is the purpose in this chapter to discuss general points of view affecting the classroom teaching process. Among these the following should be given careful consideration:

1. *Science, including health, should be taught in the elementary school not as a separate subject, but as an integral part of the major units of work.* Practically all real experience units are rich in science possibilities; many of them are chiefly scientific in nature. The units on the home and weather described in Chapters 3 and 4 illustrate this.

First-grade children, experiencing in connection with a home unit, are very much interested in heating, ventilation, lighting, sanitation, food, electric gadgets, and various other factors of a scientific nature. One first-grade child, upon hearing her mother say she would get some gasoline and do some dry cleaning, said, "Mother, don't you know you should not use gasoline to clean things with?" She had learned in school that noninflammable cleaners were obtainable and that gasoline was unsafe for use in the home.

The unit on weather was chiefly a science unit, yet it provided experience in social living. No one who closely observed the progress of the unit over several months could doubt that the children were vitally

interested in weather phenomena and their relation to plant and animal life, including mankind. The results of the objective tests used to measure certain of the growths from the unit indicated conclusively that the children learned much science during the progress of the unit.

A sixth-grade teacher kept a careful record of the science experiences of her class during its work with a unit on South America.³ This unit had been approached largely from the industrial standpoint and had lasted several months. The activities listed below were participated in to such an extent that the teacher felt that real growth in science learnings had been achieved by the class as a whole.

(a) *Learning How Steam and Internal-Combustion Engines Work.* The class became interested in the power propelling the boats carrying goods to and from South American ports. From models, diagrams, and photographs they learned the general principles of the working of steam, gasoline, and Diesel engines.

(b) *Learning How Boats Are Cooled by Refrigeration.* Stimulated by a visit to a port, the children became interested in the banana boats operated by the United Fruit Company. They spent considerable time learning how perishable goods are transported across the ocean and about the principles of refrigeration.

(c) *Learning How Bacteria and Microbes Cause Disease.* A brief study of the Panama Canal in its relation to South American trade aroused interest in the fight to control yellow fever and led to the reading of stories about Walter Reed and his staff and their conquest of the disease.

(d) *Learning How Rubber Is Made.* The class was interested in the processing of rubber and gathered information about its manufacture. During the progress of this study they obtained many samples of rubber and made their own rubber from latex. Much of the creative expression of the class in art, music, rhythms, dramatic play, and writing developed from the study of the gathering and manufacturing of rubber.

(e) *Learning about Plant and Animal Life in South America.* Many pictures and specimens illustrating wild and domesticated life were obtained from various sources. These formed the basis for reports, maps, and exhibits. The children were especially interested in this phase of their study.

(f) *Learning How Oil Is Obtained and Manufactured.* The children visited oil wells, studied about and dramatized incidents relating to oil and its discovery, and heard reports upon the oil industry by representatives of the industry.

(g) *Learning about Minerals and the Nitrate Industry.* The children spent considerable time studying about copper and tin, their manufacture and use,

³ Magnolia School, Riverside, California; Marion C. Condit, teacher.

and about the nitrate industry and its importance to Chile and to the world at large.

(h) *Learning How Cloth and Leather Are Made.* Samples of wool in its various states of manufacture were obtained from various sources. A study was made of the tanning of leather and of how different leather products are made.

(i) *Learning How Different Forms of Life Are Affected by Geographic Factors.* Climatic and other geographic factors and their effect upon plant and animal life in the different regions of South America were emphasized throughout the study.

At the close of the study the teacher and others concerned with the development of the unit were convinced that a unit ordinarily considered to be in the field of the social studies was filled with potentialities for science learnings and that science was an integral and very important part of this unit of work.

If science in the elementary school is to be fused with other activities rather than taught as a separate subject, it becomes especially important that the teacher and the school have clearly in mind the concepts to be developed, and that the teacher be on the alert to utilize the many opportunities for science learnings in each unit of work. Teachers must realize that these major units are not primarily social studies or science or health units but broad units of experiences which cut across all subject-matter fields.

It is obvious that the complete fusion of what have generally been regarded as social studies, science, and health, and the development of these learnings through experience units, are difficult, if not impossible, in situations where there is a high degree of departmentalization. This is generally the case in junior high schools, and it still is the situation in all too many elementary schools, especially in the intermediate and the upper grades. In such cases it generally becomes necessary to have separate periods for social studies, science, and health teaching. It is then desirable to organize the science and health work as a series of experience units, and there should be every attempt to develop all units so that the social implications of science become integral parts of them. It is equally true that the units in the social-studies classes should be rich in science learnings, even though there is a separate science class. This necessitates a close correlation of the work of the science and social-science teachers in order to avoid undesirable duplication and to include essential learnings in the curriculum. If the science class and the social-studies class are made up of the same students, it is feasible and desirable to correlate the work closely at many points.

Suppose that in School X, for example, the eighth-grade work in the social studies centers around problems of community living. Many of these problems are rich in science learnings, some of them being chiefly scientific in nature. The science teacher and the social-studies teacher should plan their work so that the units to be developed supplement each other and are closely correlated. For instance, the problem of the conservation of health and property, one of the major problems of community living, can be studied as the chief function of such departments as health, fire, and police, and as a major concern of the water, light, park, and highway departments. Science can be shown to be playing a greater and greater part in the solution of the problems of traffic control, fire protection, road building for safety, water and light management, police protection, and conservation of health, and in city planning for beauty, convenience, and efficiency.

Units which are concerned more with social than with scientific learnings should be developed in the social-studies room, while those which are especially rich in science should be developed in the science room, with the work of the two rooms closely related at all times. A unit for the social studies may be "Organizing Our City for Effective Government," while the unit for the science class may be "Science in the Conservation of Life and Property." In the social-studies unit emphasis can be placed upon the nature of the problems that must be solved, the manner in which the city has organized and is organizing to solve these problems, and the nature of the work done by the various agencies of the community. The selection of leaders, the raising of money to carry out the various functions of government, and the ways and means of solving the problems of community living are some of the basic problems out of which the many activities of the unit may develop. Fighting fire with science, using electricity in the home, protecting health with science, and similar problems can furnish ample opportunities for weeks or even months of science learning activities.

It must be emphasized that in a program of this type it is absolutely essential that the teachers involved develop the work together throughout the year. Correlation cannot be achieved successfully by administrative order; it must come from close co-operation in teacher planning and executing.

2. *The whole school curriculum should be rich in science.* Many school activities other than those developing out of the major units of work, or out of the science class itself in those situations where science is taught separately, can and should contribute greatly to the development of science concepts and to a scientific way of thinking

and acting. School gardens, room aquaria, camera clubs, 4-H Clubs, Boy Scout and Girl Scout organizations, bird clubs, and various other agencies of the modern school should contribute to science learnings in both the elementary and the secondary schools.

Health activities should be a part of every day's activities in each room of the elementary school. The school cafeteria and the lunchroom should make contributions to healthful eating, not through teacher lectures but through pupil practice. The safety problem is always with us, in school and out, and should be dealt with continually rather than at set periods. Little children love to have pets at school and to care for them, and in so doing they can learn about animals and how they live. There are the problems of ventilating, lighting, and heating the classroom, which change with the weather conditions. The prevention, control, and cure of infectious diseases, the care of the room radio, the beautification of the school buildings and grounds—these and countless other problems furnish the motivation and provide the materials for continual scientific experiencing.

3. *Throughout the elementary school the major units of work must be planned so that there is adequate opportunity for the inclusion of units which are rich in science and health learnings.* Unless the curriculum is so planned, science learnings are apt to become secondary to those learnings usually thought of as social studies. For years history, geography, and civics have been conventional subjects in the elementary school. Science, on the other hand, has had comparatively little attention in most schools and by most teachers. If science activities are not planned in the development of the curriculum, they are apt to become haphazard or to be almost entirely neglected.

Many units, such as "Life at the Seashore," "Living in Desert Regions," and "Clothing," offer excellent possibilities for experiencing in the field of biological science. Others, such as "Transportation" and "Weather," offer much in the physical sciences. The units "Understanding Our Bodies" and "Safety in Our Home and Community" are chiefly health units and as such are scientific in nature. Units of this type should find a place in the elementary classroom, along with those which develop from the area generally thought of as the social studies. To insure this requires planning by the faculty as a whole and by each class.

4. *The purpose of science activities is to develop understandings of the world of science and scientific ways of thinking.* It has been emphasized that science learning must come through rich experiencing with the materials of science. Because the development of science con-

cepts and the scientific attitude constitutes a major aim of science teaching, it is desirable to consider briefly how such learnings are achieved.

While wise guidance may prevent undue confusion of the learner and may eliminate much of what is often called "trial-and-error learning," it should be kept in mind that one cannot short-cut the educational process greatly and still obtain real understandings. A child does not learn how steam or gasoline makes an engine or an automobile go by memorizing certain stated principles from a book or even by studying a diagram. He may learn to recite glibly what the author said, even to explain a diagram in the author's words, but this is no guarantee that he understands the concept. Books may be helpful, and the diagram may be the very thing the child needs to clear up some point he does not understand, but this is supplementary to actual experience with gasoline and steam engines. It does not take the place of such experience. If the child has been around gasoline and steam engines, has talked about them, has played with mechanical toys, and has developed mentally to a point where the book and the diagram are understandable, the study of them becomes a real learning experience and contributes greatly to his understanding. But one cannot substitute book learning and the memorization of facts and principles for experience with the real thing and still have an effective learning situation. Complex understandings mature slowly through experiencing over a period of time, not from studying assignments and reciting upon them.

Francis D. Curtis points this out clearly in his article on "Some Points to Be Remembered in Teaching Elementary Science."⁴ Dr. Curtis warns elementary teachers against adopting the conventional methods of the high school science class, and he describes the inductive and deductive approach in a class in physics. While this illustration is at the secondary level, it serves well to bring out the point at issue and consequently is quoted here at some length. Boyle's Law—*when the volume of a confined body of air is decreased, the pressure of the air is increased*—is used to illustrate first the traditional deductive approach and then how it might be taught to intermediate grades by a combined inductive-deductive procedure.

In developing this principle deductively, the teacher starts with a statement of the principle. This statement is then carefully explained, and several illustrations and applications of it are introduced by means of the air pump or, more commonly, by a discussion of familiar examples or applications of the principle in daily life. As a result, if the teaching has been thorough and

⁴ See *Science Education* for March, 1940, pages 121-125.

skillful, the pupils may be expected to arrive at a comprehension of the principle.

Such teaching as this, however, is contrary to the ways in which scientists have solved the problems of science since the earliest beginnings of problem solving. Scientists and all others who have used the methods of science have attacked problems inductively; that is, from specific to general—from facts to principles. They have begun by attacking a problem the answer to which they did not already know; they have gathered facts pertinent to the problem, and finally, when they have gathered enough facts, they have formulated a generalized statement or principle which includes all these facts.

The following example will illustrate how the combined inductive-deductive methods might be used in teaching the same principle as that discussed previously to a class of intermediate-grade children. The work may start with a problem somewhat like this: "Does the air in a rubber balloon press harder or less hard on the inside of the balloon when the balloon is made littler?" The children inflate balloons and squeeze them, with the result that the balloons burst. With this first problem or question answered, the pupils are ready for another, such as this: "Does air that is compressed (that is, air that is pressed together) in a bicycle pump push harder or less hard than it did before it was compressed?" With a hand tire-pump, the children arrive at the answer to this problem by holding the end of the rubber tube leading from the pump as the handle of the pump is pressed down, and as it consequently makes the volume within the pump less. From these and other facts learned from the solutions of problems similar to and closely related to the two already solved, the children are finally able to generalize; that is, they are able to make the statement of the minor principle somewhat like this: "When something that is full of air is pressed or squeezed so that it is made smaller, the air in it presses harder than it did before." They have arrived at this statement inductively—they have started with related problems, and by solving these one by one they have secured enough facts to reveal to them the generalized statement. Thus they have proceeded from the particular to the general.

Having thus developed a comprehension of the principle inductively, the boys and girls are ready to develop a further understanding of it deductively; that is, by proceeding from the general to the particular. Thus they start with the principle and apply it in new situations. The work may follow some such lines as these: The children are given a problem like this, "What do you think might happen to an automobile tire full of air if the automobile were suddenly to run into the curb or into a large stone in the road?" In guiding the pupils to a solution of this problem the teacher will probably need to break it up into smaller problems. The extent to which the problem is thus made into smaller ones will of course depend on the maturity and ability of

the group. Appropriate smaller problems might include these: "Would the tire be made bigger or littler by running into the curb?" "What would happen to the air in it when the tire was dented by the curb?" "What then might happen to the tire?" Progress through a series of problems such as these will lead the class to arrive at the conclusion, stated in terms of their own vocabularies and experiences, that the volume of the tire would be made less and consequently the pressure would be increased to a degree that might result in a blowout. Many other applications of this principle (that is, many other ways to make it clearer to the pupils by the use of the deductive method) will occur to every teacher—such examples as the reason that a rubber ball bounces, that a football can be kicked long distances, and the like.

It will be noted from these illustrations that both the inductive and the deductive methods have important uses in problem solving and reflective thinking, but that induction should in most cases precede deduction. Thus, by the inductive method facts gathered in the solution of definite new problems are combined into generalizations, statements, or principles; then by the deductive method, the principles are applied in specific real-life situations.⁵

The elementary school should be thought of as a place of broad and continuous science experiences, many of which are for no purpose other than learning about the physical environment. Children want to know what things are, what they are for, where they come from, and what made them. It is from wide experience, under guidance, in finding answers to these and other questions that growth in desired understandings, attitudes, appreciations, and abilities results. A concept or an attitude does not just suddenly emerge; it is a matter of continuous growth and change, and it matures through experiencing, not through "lesson getting."

5. *Science teaching, to be effective, must utilize all the resources of the community.* The place to study flowers, birds, and insects is out in the fields and woods. The place to find out how the city protects its water supply is at the water department, not exclusively in a textbook written for schools in general but for no city or village in particular. Visual aids in the form of prepared slides, still and motion pictures, exhibits, diagrams, and other materials are invaluable. Books of the general text and reference type and those dealing with special science and health topics are essential to the learning process. In fact, we need more, not fewer, books, and more visual and auditory materials.

The point to be emphasized is that all available resources should be utilized. Schools must depend on the whole community for subject

⁵ Quoted by permission of the author and *Science Education*.

matter for the many activities which make up a worth-while science education program for children.

TEACHER EDUCATION

Many teachers are greatly concerned because their backgrounds in science and the social studies are limited, and so they should be. Teachers in training would do well to spend a large portion of their college time in science classes, preferably in classes of the life-science type rather than in those of a highly specialized character. Teachers in the field should build up their science background through summer schoolwork and study. The lack of rather thorough education in the sciences, however, need not prevent a teacher from guiding the children of a group into worth-while science experiences. As has been stated before, the day has passed when the teacher was expected to "know all the answers" and when teaching consisted of hearing recitations on assigned lessons. A teacher can conduct a worth-while excursion to a dairy, an airport, or a powerhouse and utilize the experts available there to answer the children's questions when his own knowledge of these industries, and of the scientific factors involved, is somewhat limited. The teacher and the pupil can learn together, if the proper attitude toward learning has been developed, with the teacher acting as guide rather than as examiner.

Every teacher in the modern elementary school needs to understand the world in which he lives, and the teacher in training should plan accordingly. A sound education in contemporary living, including the areas of science, social studies, and literature, and at least some basic experiences in the aesthetic areas, is essential to effective teaching. The elementary teacher of today must be a well-informed person and must have developed the capacity for effective social living.

PROBLEMS FOR STUDY AND DISCUSSION

1. There are many educators who argue that science is systematic in its very nature and consequently should be taught systematically. Others argue that systematization should result from broad and continuous pupil experiences and should be done by the pupil and not for him. Which point of view is more in harmony with the nature of the learning process? Defend your answer.
2. An administrator recently said that it was hardly fair to expect experienced teachers who had specialized in certain subjects to the exclusion of sci-

- ence, and who had given a number of years of faithful service to education, to go back to school to build up their science background. Discuss this point of view, considering the purpose for which the school exists.
3. Study carefully the statement of aims of the Educational Policies Commission in Chapter 8, pages 197-199, and consider the following questions:
 - (a) To which of these aims will science experiences, including health, make a major contribution?
 - (b) What specific science concepts are involved in each of those selected?
 - (c) What specific types of science experiences by the children are essential to the growth desired in each?
 4. Discuss the point of view that good mental health is to a large extent dependent upon a scientific understanding of one's own self.
 5. Make a survey of the community in which you are living to discover the possible resources for science teaching.

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10 · Developing Competency in the Three R's

R*ead*ing, *w*riting, and *a*rithmetic, for many decades considered to be the fundamentals of education, are now seen in a somewhat different light. Education is now conceived as being a much broader thing than merely training children in the so-called "three R's." The development of well-rounded, well-integrated individuals capable of living reasonably happy and worthwhile lives as members of a democratic and highly dynamic society constitutes the purpose of education. Obviously, there are certain abilities which are absolutely essential to the individual if this purpose is to be realized. Among these are the abilities to read, to express oneself in speech and in writing, and to utilize mathematics to solve the common problems of everyday living. This newer concept of education does not detract from the importance of the three R's. Educators are well aware of the fact that the ability to read well has never before been of such vital importance as it is today. While the typewriter and the calculating machine have greatly changed the writing and arithmetic needs of individuals, the importance of the essential abilities is in no way decreased. But in recent years teaching has been modified to develop these abilities in more functional and consequently more purposeful situations, and to develop procedures more in harmony with the nature and needs of the child. Such modifications are based on changed psychological, philosophical, and social considerations rather than on any decrease in emphasis in these areas.

Anything approaching a thorough discussion of the teaching problems in reading, oral and written expression, and arithmetic would require several volumes. In a book devoted to several phases of the whole educational process little more than general points of view can be presented relative to developing essential abilities in the language arts and mathematics areas of the curriculum. Several excellent and relatively complete discussions of these problems are available, and it is to be hoped that the beginning teacher will make wide use of these materials.

DEVELOPING READING ABILITY

A Concept of Reading. In the modern school the phrase "developing the ability to read" implies much more than a mere mastery of the mechanics of reading. It means not only developing the ability to recognize printed symbols and to translate them into words, phrases, and sentences, but learning to interpret and to think reflectively about what is read.

In the *Thirty-sixth Yearbook* of the National Society for the Study of Education, William S. Gray expresses the committee's point of view on the nature of reading as follows:

It assumes that the reader not only recognizes the essential facts or ideas presented, but also reflects on their significance, evaluates them critically, discovers relationships between them, and clarifies his understanding of the ideas apprehended. . . .

The Yearbook Committee believes that any conception of reading that fails to include reflection, critical evaluation, and the clarification of meaning is inadequate. It recognizes that this very broad use of the term implies that reading includes much that psychologists and educators have commonly called thinking. The committee does not object if anyone wishes to make a distinction between securing ideas on the one hand and using them in thinking on the other. It takes the position, however, that since efficient readers do think about what they read while they are reading it, the teacher should provide needed stimulus and guidance both in securing ideas from the page and in dealing reflectively with them.¹

Early Reading Experiences. Most children have had some experience in reading prior to entering school. They have had at least a few stories read to them from books and have looked at and studied pictures in books, magazines, and newspapers. Some may have books of their own and have learned to recognize each by its general characteristics, including the printed title. A few children can recognize their own names in print, while one or two in a group of thirty children may even have developed a reading vocabulary of a few words.

Should all children be expected to learn to read early in the first grade? If by "to read" one means "to make satisfactory progress in developing a reading vocabulary," the answer is a very definite "No." We know only too well that children differ greatly in their mental,

¹ William S. Gray, "The Nature and Types of Reading," in *Thirty-sixth Yearbook of the National Society for the Study of Education, Part I, The Teaching of Reading: A Second Report*, p. 26, Public School Publishing Company, Bloomington, Ill., 1937. Quoted by permission of the Society.

social, physical, and emotional development, so that while many first graders are capable of making rapid progress in this complex ability, many more should not be expected to learn to read for some time after entry—some not even during the first year. If the teacher accepts the philosophy of modern education that the curriculum should be adjusted to the nature and needs of the child, he not only will expect progress in all areas to be greatly varied but will see this as the natural and necessary state of affairs and will plan the teaching accordingly.

A group of thirty-two entering first-grade children in any school will differ in chronological age from under six to over seven. The mental age of some of them will be less than that of the average five-year-old; the mental age of others will be that of an average child of eight or more years. In their general social, physical, and emotional development there will be the same wide differences.

It is an established fact that satisfactory progress in reading is dependent on the child's having reached a state of mental maturity somewhat beyond that of the average six-year-old, and that a rather extensive vocabulary and a fairly rich background of experiences are essential to such progress. Hence it is evident that great differences in reading progress are to be expected among any group of first-grade pupils. Good teaching demands not only a recognition of these facts but the development of a classroom curriculum in harmony with these differences in children.

At the end of a year under good teaching, one should expect something like the following results: A few of the children, those of advanced mental and social development combined with at least average physical maturity, will have progressed so rapidly that they will have read not only most of the first-grade materials but much of what are usually termed second-grade reading materials. These children can and should advance as far in one year as some will advance in two or more years. The progress of the children as a whole will vary from that of these few children of high reading ability to that of children who, because of retarded mental, social, or physical development, have not yet learned to read from the printed page.

But reading is not the chief purpose of the primary school. It is an important tool with which we work and its development is essential to effective living, but it should be thought of in this capacity and not as the major end toward which primary education is dedicated. Some educators would teach no book reading at all in the first grade, and they maintain that it is not at all necessary to do so. They stress the importance of the social development of the child, the building up of a rich experiential background, and the developing of a wide functional

vocabulary. They produce experimental evidence to show that children experiencing this curriculum learn to read much more rapidly when they do begin, so that they soon overcome any handicaps of the late start.

While much can be said for this point of view, there are many first-grade children who not only are mentally and socially ready for reading but really want to read, and these should be given the opportunity to do so. So long as the process is not forced and the child is not denied the rich activity curriculum of the modern primary school, there would seem to be no good reason for his not learning to read. The one point on which educators express doubt relates to the child's eye development. Eye specialists are very critical of the type of program that keeps young children engaged on close, fine work for long periods at a time. They maintain that the old school, with its overemphasis on reading, coloring small pictures, and similar activities, has undoubtedly been responsible for much of the eye difficulties of adults today. At present too little is known about this problem to justify making exact recommendations either against or in favor of a first-grade reading program. There is probably little danger if physical conditions, such as lighting, are good; if much of the early reading is from charts—preferably those developed by the children themselves; and if the reading activity occupies its proper place as just one of the many worth-while things to do during the primary years of school.

Developing Reading Readiness. The factors which determine the readiness of a child to make satisfactory progress in the actual recognition and interpretation of printed and written symbols are those of mental, social, physical, and emotional maturity. A child may be ready for rather simple reading from charts and primers but not yet ready for reading dictionaries, graphs, and other more advanced materials. Consequently, the developing of reading readiness is a problem throughout the school life of the pupil. Many children come to school ready to begin the actual process of reading printed words. Many have already started to read. Others, because of mental, social, physical, or emotional immaturity, are not yet ready for this phase of the reading process and cannot be forced into it without harmful results.

The significance of all these factors can be made more understandable by an illustration. Mary and Jack are each six years five months old upon entrance to the first grade, and both are well developed physically. Mary has an intelligence quotient, as derived from an individual intelligence test, of 117. Her father is a successful small-town businessman; her mother is well educated and interested in the development of her three children, two of whom are older than Mary. Mary has a number of books of her own and delights in studying the pictures and in telling

and hearing the stories. She is anxiously awaiting the day when she can read them herself. Jack, on the other hand, is the child of poor parents who have spent the last few years making a bare living on a small farm two miles from town. Jack has seldom been off the farm and never out of the county. His parents are poorly educated, read very little, and have few books around the home. Jack has no books of his own, and his reading experiences prior to entering school have been most meager. His intelligence quotient, as determined by the same intelligence test as administered to Mary, is 88.

Taking into consideration the fact that success in learning to read is based upon a combination of a rich background of experiences, a well-developed vocabulary, and a mental development equal to that of the average child of from six years four months to about six years eight months of age, it is evident that progress in reading for these two children will be unequal. Under good instruction Mary will most likely progress rapidly, and she should soon be reading better than the average first grader. It is doubtful if Jack will make much progress in the actual mechanics of reading for several months, and then his progress will be much slower than Mary's. An activity curriculum designed to enrich his experiences, build up his vocabulary, and create a desire to learn to read is the first requisite. The increased mental maturity, combined with the social maturation resulting from the modern first-grade program, should make reading from charts and books a reality near the end of the first grade or at the beginning of the second grade. Unwise pressure to force the actual mechanical phase of reading at the beginning of the first year would not only fail to result in much progress but would in all probability do much harm. Habits such as memorizing rather than reading might be formed as a defense mechanism. Worse yet, Jack would probably learn to dislike reading and would develop a failure complex regarding it.

Forcing the reading process with children like Jack is not only a waste of time, when there are so many real learning possibilities in the first year of school not dependent on reading ability, but actually does more harm than good. It often handicaps the reading process at a later time, when such learning is possible.

Books, Charts, and Reading Systems. There is a great deal of controversy today over the place of books in the beginning reading program, especially as to the use of a given series of readers as basic materials. There are available several well planned series of readers, together with detailed instructions for their use. Teachers who lack the desired degree of understanding of children and of the manner in which they learn to read will probably do well to adopt and follow one of these

reading systems. However, each primary teacher should have a thorough understanding of child nature and of the psychology of learning to read, together with a modern philosophy of the place of reading in the primary curriculum, and—given these fundamentals—will most likely prefer to develop his own reading program, unhampered by a “system.”

No single series of readers furnishes ample reading materials for the modern first and second grades. Each series has to be supplemented by word drill, workbook exercises, and chart work in order that the child may come in contact with the given words often enough to insure their retention. Such repetition can be gained in purposeful situations through the use of the children's own reading materials developed out of their daily activities, and by the use of a number of different preprimers, primers, and of more advanced books as the children gain in their reading ability. Different series of readers still vary greatly in their reading vocabularies, and there is danger of introducing the child rapidly to so many new words that he becomes confused. This weakness of readers is not necessary, however, and it is being corrected. Some publishers are already providing several preprimers and primers with similar vocabularies to meet the increasing demand of educators for such materials.

Many teachers prefer to develop much of the early reading ability from charts developed by the children in connection with their major unit of work and other school and community activities. Under this concept of education; children go to books not primarily to learn to read but to gain information or to enjoy themselves. But the first-grade teacher must be alert to the reading vocabulary which the children will require in the reading of the books available and must guide their reading experiences so that this vocabulary will be developed. This emphasizes the importance of the primary teacher's being somewhat of a reading specialist in his own right. If this is not the case, he will do well, as stated above, to follow rather closely the suggestions of the teacher's manual of a good reading series.

Reading and the Unit of Work. Every good unit of work is rich in opportunities for reading experiences. The chief difficulty, which is now being recognized by at least some of the publishing houses, is the lack of materials of an informational or recreational nature for use in connection with the activities of the unit. While this lack is not so serious during the early months of school when many of the reading materials develop out of the unit itself and are made available in chart and duplicated forms by the teacher, it becomes a real deficiency at a later period.

Consider a first-grade group which has been working out a unit on transportation for three or four months in the spring semester. Several

of the children are reading preprimer and primer materials; a number are able to handle the usual first-grade readers without difficulty; and three children can read fluently from second-grade readers. It would be helpful to have available at this time ample reading materials about trains, airplanes, trucks, and boats. Such materials should be informational in character and well illustrated. Many of the books should be of a preprimer level of difficulty, while others could well be of second-grade difficulty.

The present lack of ample reading materials of various levels of difficulty for the different units of work is one of the reading problems largely unsolved at the primary levels. During recent years this problem has been receiving increased recognition. As more and more teachers demand these materials, they will be forthcoming.

Special Reading Periods. Is there need for special instruction in reading other than that in connection with the unit of work and other activities of which reading is an integral part? In the past there has been a great deal of debate on this question, but there now seems to be rather common agreement that special reading periods are necessary once a child has begun to make satisfactory progress in reading. It often has been demonstrated that a primary teacher with an adequate understanding of the reading process can do an excellent job of teaching children to read without setting aside a special period of the day as the reading period. The reading process is so complex, however, and it is so closely related to progress in other areas of the school curriculum, that most teachers devote certain periods of the week to special guidance in the improvement of reading. Such reading instruction should be based upon the needs and abilities of the individuals of the class, rather than being the formalized, lock-step instruction of the past.

There must be a great deal of word study in reading instruction, but it should be functional in nature and grow out of the reading situations. As the child progresses, some systematic instruction in phonetics is considered desirable; but, again, the instruction should be functional in nature and adjusted to the needs of the pupil. The purpose of instruction in phonetics should be that of helping the child to develop independent power of word recognition, not that of helping him to master it as subject matter.

Measuring and recording progress should be an integral part of reading instruction. Testing is not for the purpose of giving grades; rather, it is for the purpose of evaluating the teaching and learning situation and the child's progress as he moves through school.

Reading in the Intermediate and Upper Grades. The purpose of reading in the intermediate and upper grades does not differ from its

purpose at the primary level. The point of view that the primary and intermediate teachers are chiefly concerned with the development of the mechanics of reading, and that the upper-grade and high school teachers are concerned with the use of this tool in gaining further education, is no longer acceptable. It is doubtful if there is any phase of the reading process which should not have its inception in the primary years and continue in its development throughout the school life of the pupil. The first-grade child who carefully studies a large picture of a locomotive to discover how to build a cab is engaged in research just as truly as the seventh-grade pupil who searches the index of the encyclopedia to find articles dealing with the production of oil. Each is learning to utilize books in the solution of problems. The second-grade child enjoying the teacher's reading of lyric poetry is having an experience in the appreciation of poetry just as surely as is the high school pupil listening to his English teacher's interpretation of a portion of *Macbeth*. Developing the ability to read is a continuous and dynamic process which is never completed. The college student who is discovering how to use certain guides to literature or who is developing the vocabulary essential to the reading of advanced books in science or mathematics is improving his reading ability just as surely as is the second-grade child who, through his experiences with a unit on the dairy, is able to read with increased understanding a story of how butter is made in the modern creamery.

Reading and the Whole Curriculum. Reading ability develops out of the total school experiences of the child rather than in connection with any one subject or period. For example, the place to develop the ability to do research in the social studies or in mathematics is in situations necessitating such research rather than through artificially created activities in an English or reading period. The pupil should learn to use the dictionary and the encyclopedia in purposeful situations, not through formal exercises. This means that the development of reading ability is a major aim of all teaching in which the reading process is involved, regardless of whether it is at the elementary level or the secondary level.

Progress an Individual Matter. Whether we wish it or not, children will progress in reading at greatly varying rates. The modern school is recognizing this as the natural thing and is modifying the curriculum accordingly. This does not mean that all activities in which reading is a part must be organized so that instruction is individualized, but it does mean that pupil progress is largely an individual matter.

Let us look in on Miss Smith, who teaches the eighth-grade class in a progressively inclined school in a small city. The class is developing

a unit on "Westward Expansion" in which reading plays a prominent part, along with many other learning activities. During her three years at the school, Miss Smith has been able to obtain for the school library a number of books dealing with the many phases of living on the different frontiers and with the several Westward treks, such as the movement into the Ohio Valley, the settlement of the Northwest, and the expansion to California. Many of these books are written for fifth-grade and sixth-grade children and can be read understandingly by the low-ability readers in the room. Several books deal with special phases of frontier living and were written for junior and senior high school pupils. A number of the books are histories; others are historical fiction; some are biographies; while others are travel stories. A number of geographies are available also. Miss Smith sees no reason why every child should read the same materials and study exactly the same things. She sees in the unit the possibilities for developing increased understandings of how man adjusts himself to the physical environment, how he is learning to control it, and how the various factors of the physical environment have come into being. She sees opportunities for developing increased appreciations of the literature, music, and arts and crafts of frontier living, and for stimulating creative expression. She is very much concerned with helping the children develop in their ability to write and speak correctly and effectively. Miss Smith spends considerable time advising the different children about their reading for the unit of work. The better readers are encouraged to utilize the more difficult and comprehensive books, while those children of low reading ability are guided in their reading to books which they can read with understanding.

The reading activity is an important part of every day's work, and pupil growth in this ability is one of the major aims of teaching. Effective learning in reading is possible, however, only as the reading materials are within the child's level of reading ability and are challenging. It is not good for the child of high reading ability to read materials too easy to force concentration, nor is understanding possible if the reading is too difficult. If all children are expected to read the same materials, some are forced beyond their reading level, with disastrous results, while others are allowed to "loaf" mentally, with equally bad results.

All children should contribute to the class discussions and other activities, many of which are of a problem-solving nature, but not all children should read exactly the same selections from the many books. The important thing is that all children make definite growth along the lines of the aims of education—that they increase their understand-

ings of the world in which they live, that they modify their attitudes and appreciations along socially desirable lines, and that they grow in their capacity to perform the activities essential to social living. While they may all be considering various phases of the same general problems and participating in the same types of activities, it is not at all necessary or possible that all have identically the same experiences nor that all read the same pages from given books.

Diagnosis and Remediation. It often has been argued that if all teachers understood the psychology of learning to read, and if the curriculum were adjusted to the abilities of the children, there would be little or no need for remedial reading instruction in the elementary school. This is comparable to saying that if all citizens were completely law abiding there would be little need for jails and law-enforcement officers. Certainly, if every teacher were a reading expert, the number of remedial cases would decrease very materially. The fact that a high percentage of elementary teachers are far from being expert in reading instruction results in the development of a number of remedial cases in the schools, in secondary as well as in elementary schools. But it is doubtful if all reading problems could be prevented from developing by expert teachers. Many are emotional in nature, and are at least partially a result of conditions outside the school.

Many potential remedial cases can be detected by alert teachers who have learned to diagnose pupil reading difficulties. Such cases are quite responsive to remedial procedures. Most of these can be handled by the classroom teacher. The development of adequate competency to do this should be part of the professional education of all elementary teachers. Many remedial cases, however, have been allowed to develop to a critical stage; and these require the services of a remedial expert. Under good teaching, few serious remedial cases will develop. Those which do will be recognized, and expert help obtained.

Reading Materials. It has been said that the library is the center of the modern school program. It is undoubtedly true that a modern reading program can be carried on only if ample books of a great variety of types, covering a wide field of subjects, and of different levels of reading difficulty are available for each room, either through school or room libraries. The second-grade teacher with a class of thirty children should expect several of the children to have made little progress in actual book reading, and she will need at least a few copies each of practically every book available to first-grade teachers if these children of lower reading ability are to have books which they can read. At the same time, she will have several children who, before the year is over,

will be reading as well as or better than the average third grader, so there should be ready access to reading materials of this level.

There is very little need for full sets of readers and other reading materials in the modern school. Rather, there should be several copies of each of a large number of books in each area of study. In the first grade, for instance, it is better to have from four to eight copies each of several different series of readers than to have full room sets of only one or two series. In very few instances in the modern school will it be found that more than one-fourth to one-third of the children have advanced to a point where they should be reading the same books at any given time, so that a full set of readers is seldom needed.

Records of Reading. Many teachers are finding it helpful to maintain a file for keeping a record of each child's reading. One teacher made such a file with shoe boxes, giving each child a separate box in which to keep a record of everything he read during the year. The titles of these items were written on 5×8 inch cards by the child and were filed alphabetically. At any time the teacher or the parent could go to the file and find out just what books and stories the child had read to date.

It is essential that year-to-year records of a child's progress in reading be maintained throughout the elementary and the secondary school. This necessitates a carefully planned and well-administered program of standardized testing, together with a cumulative record system for recording scores. It is helpful to an upper-grade teacher in guiding a pupil's reading activities to have both a cumulative record of his progress in reading straight through from the primary grades and a record of his present reading age. One is as important as the other in planning a child's program of reading.

Need for Intensive Study of the Nature of the Reading Process. This discussion of necessity deals more with general principles than with specific, but it cannot be emphasized too strongly that every elementary teacher should make himself something of an expert in guiding the development of reading. This requires an understanding of achievement and diagnostic testing procedures and techniques, an ability to give remedial as well as developmental guidance, a knowledge of available reading materials and sources of materials. The teacher should study the nature of the reading process to develop a deeper understanding of educational testing and remedial teaching. The superior teacher is one who has developed a modern philosophy of education together with a thorough understanding of the psychology of learning to read, not one who depends upon a particular technique, a teacher's manual, or a course of study for direction in developing reading ability in her pupils.

DEVELOPING MATHEMATICAL ABILITY

Changing Concepts. The development of the ability to understand and apply mathematical concepts and processes in the solution of problems of social living is one of the important aims of education. Mathematics today is conceived to be functional and purposeful in the daily life of the learner, not just a series of skills to be learned for future use or for mental discipline. Mathematics is no longer justified in the curriculum on the basis of its mental training value but because of its usefulness in the daily life of the individual. Consequently, we have seen the disappearance of the "brain tickler" types of problems and procedures and the development of a mathematics curriculum based upon the life needs and interests of the pupils. Changed points of view in the psychology of learning are bringing about changes in the teaching procedure and the content of mathematics.

Many of the readers of this chapter began their study of arithmetic in school by learning the addition and subtraction combinations through long and steady drill. Then came the multiplication tables, to be committed to memory in the same manner. Each combination was learned, supposedly, by establishing the proper connection between a stimulus and the correct response, so that a child seeing the numbers 5 and 4 and the addition sign would automatically respond "9." But when he had learned through drill that $5 + 4 = 9$, he also had to learn by the same procedure that $4 + 5 = 9$ because the stimulus in the latter case is not exactly the same as in the former. Under the stimulus-response theory of learning, a stimulus had to be connected with the proper response by lessening the synaptic resistance along the neural passages connecting them. This could be done by exercising this particular bond, assisted and accelerated by satisfaction and dissatisfaction, intensity, and readiness. Each connection between a stimulus and a response had to be made separately, so that if a child had learned that $6 \times 0 = 0$ and that $6 + 0 = 6$, he still had to establish the right connections for 7×0 and $7 + 0$. There were some 100 different addition combinations alone which had to be learned individually by separate drill. Consequently, most of the classroom arithmetical experiences of the primary child were directed toward establishing the proper bonds between stimulus and response. Much was heard of the so-called "drill period of life"; and innumerable devices, games, and drill materials were conceived to make the drill pleasant and effective. As the pupil neared the fourth grade, less and less time needed to be devoted to drill, so that the acquired tools could be applied to a greater and greater degree in the solution of problems.

Today the Thorndike Laws of Learning are no longer acceptable as explanations of the learning process, nor is the bond psychology upon which they were based. Learning is a much more complex and purposeful process than the mere establishment of bonds. The recognition of insights and goals as learning factors, inseparably related as they are to the social, mental, emotional, and physical maturity of the learner, has emphasized the necessity of purposeful experiencing as a basis for the mathematics area of the curriculum. In the primary school the child is now solving problems in life situations and thereby developing mathematical ways of thinking. He is experiencing addition, subtraction, multiplication, and division in construction, dramatic play, excursions, games, and other activities of the modern school. Through actual experience he is gaining increased understandings of sixness, zeroness, fractions, money, mensuration, and other mathematical concepts. A child who through experience has developed concepts of sixness, zeroness, and addition can see that if $6 + 0 = 6$, then $7 + 0 = 7$. That is, if you add nothing to 6 you still have 6; consequently, if you have 7 articles and add nothing to them you still have 7. If he has developed a number sense and understands the meaning of multiplication, he will see that 7×0 is nothing more nor less than adding zero 7 times, which still leaves you where you started—with zero.

Some mathematical concepts are well developed when a child enters school. Most children know the meaning of 1 and 2 by having experienced oneness and twoness many times in the home. The more difficult generalizations develop slowly through actual experiencing in mathematical situations over a long period of time. The primary school, consequently, is chiefly concerned with guiding children in life experiences, many of which involve mathematical problem solving.

It can be seen, then, that yesterday's process of developing mathematical ability is being reversed. Problem solving, looking to mathematical maturation, forms the basis for the early mathematics curriculum, with practice or drill on the process coming after the concept is well formed. A child practices the more difficult combinations in order to increase the efficiency of his response after he has developed an understanding of numbers, addition, and subtraction and after he sees the need for such practice. Under such circumstances, drill becomes not only purposeful but much more efficient. This is partly because the child sees the need for it and partly because drill on each separate combination is no longer necessary, as the child now understands that adding zero to or subtracting it from a number does not change the number, that adding or subtracting 1 increases or decreases the number by 1, and that if $2 \times 4 = 8$, then $4 \times 2 = 8$.

One should guard against accepting unthinkingly the often-heard statement that arithmetic is being deferred and should be deferred to the later years of elementary education. This is not true. What is actually happening is that the primary years are becoming years of problem solving and of experiencing mathematics in life situations. Practice on the processes is being delayed until the child has developed a fair degree of understandings of the concepts involved, until he sees the process as something functional in his life that needs to be mastered. Practice on the process of division comes after the child has solved many division problems and realizes the necessity of drilling to make his problem solving more efficient. Fractions, once considered to belong to the upper elementary grades, now take their proper place in the primary school. A child learns through actual experience in dividing wholes into parts that $\frac{1}{2}$ is larger than $\frac{1}{3}$ and that $\frac{2}{3}$ make a whole. He not only gains an understanding of simple fractions but learns to add them. He can see that if he has 2 parts of a board that has been sawed into 3 equal parts, he has $\frac{2}{3}$ of the whole. In the school of today fractions rightfully take their place in each grade, but drill on the difficult processes is deferred until the child has matured socially and mentally to a point where he can master them.

Teachers more and more are recognizing the fact that progress in mathematical ability, as in reading ability, must be an individual matter. Some children, because of advanced social and mental maturity, will gain an insight into a particular mathematical situation long before other children who are less mature in either their mental or their social development or in both. There is no set time or grade level at which each child should be expected to develop the ability to solve a given type of problem or master a specific process. A number of fourth-grade children are advanced enough in their mathematical ability readily to master a process of long division. As long division is often taught, however, it is far too difficult for the majority of children of this age level. Many should not be expected to gain efficiency in this process before the sixth grade, and for some it will be possible only at the junior high school level.

A teacher who expects each of her pupils to "work the same arithmetic" is violating the very nature of the child. The teacher of today strives to develop a classroom curriculum which permits children of varying mathematical ability to travel at different rates, so that while in a fifth-grade class some of the children will be working on problems as difficult as those usually assigned to the sixth graders and seventh graders, others will be working at levels of the third-grade and fourth-grade pupils. This approach to teaching is not overdifficult, but it does

require a viewpoint different from that of the old school in which a child was supposed to be passed to the fifth grade only if he could learn to do the fifth-grade arithmetic. It means that the mathematics curriculum must be organized and developed so that pupils will work individually and in small groups in their regular arithmetic classes, and so that carefully kept cumulative records of pupil progress will be maintained.

This does not imply that all arithmetic instruction must be individualized. There will usually be children who are close enough in their ability to make possible the organization of four or five groups for discussion purposes. Mathematical problems growing out of the unit of work and other school activities will often be considered by the group as a whole, with the more advanced pupils contributing most in the more difficult situations and the less capable making contributions at their levels of thinking. During the period of the day when pupils are studying arithmetic unrelated to some special activity, the teaching should be so planned that children may advance at their own rates of speed.

Arithmetic and the Unit of Work. There has been much controversy relative to the extent to which arithmetical experiences should grow out of the activities of the unit of work. Many units, like those in Chapters 3 and 4, are rich in possibilities for mathematical experiencing. These opportunities should be utilized, not only for developing understandings and abilities in this area of learning but also for motivating the work of the arithmetic class in those grades where arithmetic occupies a definite period of the day. The conviction is growing that the unit of work and the other activities of the primary school afford ample opportunities for rich and varied experiencing of arithmetic and that no set period for instruction is necessary at this level. This is a time of problem solving rather than drill on processes, and the child's day is filled with mathematical problems without the necessity of dragging in artificial ones.

As the child matures in his mathematical ability, and as there develops a growing need for drill on the various processes, it becomes desirable to set aside certain times during the week for special instruction and study. The activities of the unit will be undesirably delayed if time has to be taken for drill on certain processes before one can construct a map to scale or make a graph showing the lumber production of the various sections of the country. It is doubtful, however, if there is any need for such a period before the fourth or the fifth grade, although teacher and public sentiment in most communities probably make it necessary to begin some special instruction in the third grade.

LEARNING TO SPELL AND TO WRITE

The abilities of spelling and writing are likewise best developed in functional, purposeful situations. The young child has little or no need for spelling until he begins writing. Since learning to spell and learning to write go hand in hand in early school activities, spelling should never be far removed from the writing needs.

While formal drill in both writing and spelling now occupies a smaller portion of the elementary school day than formerly, the importance of learning to spell correctly and to write legibly is not diminished. The progressive school recognizes the plain fact that in our modern society these abilities are highly essential and that their development constitutes a major responsibility of education. Changes in teaching procedure and time allotments grow out of changed points of view in educational philosophy and psychology rather than out of any minimizing of the importance of being able to write well and to spell correctly.

It is true that many words which were parts of the spelling lists of yesterday no longer appear and that there is less and less time being devoted to formal drill exercises in writing. On the other hand, much more consideration is being given to the development of writing and spelling in every school situation in which there is a need for these abilities.

This chapter can only present general points of view, leaving details of teaching for further study by the reader. Writing and spelling are considered separately, even though they cannot be widely separated in the classroom.

Developing Writing Ability. 1. *When should the child learn to write?* This question cannot be answered in dogmatic terms. Some children upon entrance to school are much more mature than others in those developments essential to writing success.

For example, Harry enters the first grade at the age of six years seven months. He is quite mature physically, mentally, and socially, and he comes from a fine home environment. He has spent one year in kindergarten. His neural-muscular co-ordination is considerably above average, and he has spent many hours at home drawing and coloring pictures. He can print his own name already, and can name many of the letters of the alphabet. Jean, on the other hand, is entering school for the first time. She is just a few weeks past six years of age, is rather awkward in her physical reactions, is normal mentally, and comes from a good home, but she has not been interested in pencils and crayons. Thinking only in terms of ability to learn and disregarding for the time being

any special need for learning to write, it is obvious that Harry has a much greater chance than Jean to make rapid progress.

There is little need, however, for either of these children to spend much time and effort mastering the complex skill of writing in the first grade. Writing has been a major part of the curriculum of the first grade of the past not because of any real need for it on the part of the children but because the teaching of the three R's has been considered the prime purpose of the school.

As has been pointed out by a number of educators, children at the second-grade and third-grade levels who had little or no formal writing instruction learn to write much more easily because of advanced maturity, so that they are soon writing as well as those children who have spent many long and tiresome hours practicing on their writing in the first grade. There is little to be gained by insisting that children learn to write in the first grade, and much valuable time needed for social experiencing is wasted. Children in the first grade who want to learn to write certainly should be encouraged to do so, but they should not be forced to learn. There are so many real learning activities in the modern first-grade curriculum that there is no need for a writing period to fill up the day.

2. *Should the primary child learn cursive or manuscript writing?* This is still a debatable question. Manuscript writing has certain advantages. Among them are the following:

(a) Manuscript writing consists of simple curves and straight lines, with no complicated connecting strokes between letters as in cursive writing. It is consequently more easily learned, and the child can use writing as a tool at a much earlier time and with less effort than when cursive writing is taught.

(b) It is much less confusing to the child during the early months of school, as it is similar to the print of his books and charts.

(c) It is a form of writing well worth mastering, even though the child will take up cursive writing later. No time is wasted, as most people find it necessary to learn to print even though they first learned cursive writing. It becomes chiefly a matter of which is to be learned first.

(d) Many children who, because of poor muscular co-ordination, will never become good cursive writers can develop a very legible manuscript form of writing.

Among the advantages claimed for the cursive style of writing are the following:

(a) Cursive writing is a more rapid form of writing. Pupils who learn manuscript writing usually change to cursive, or run their manuscript form into a cursive form by connecting the letters, when they get into the upper grades and the high school. Hence it is timesaving to learn cursive writing in the first place.

(b) Cursive writing gives a smoother and more flowing style of writing. The letters are connected by natural strokes, with most of the old-time flourishes eliminated.

(c) The child who cannot read cursive writing is handicapped, as most people write the cursive form. He often feels that he has not learned to write and is dissatisfied with the manuscript style because of this.

(d) Children who learn to read best by kinesthetic activity will be handicapped by manuscript writing, as it does not lend itself well to this manner of learning.

Out of the controversy over manuscript and cursive writing come certain recommendations which seem to be gaining general acceptance.

(1) First-grade teachers should certainly use manuscript writing for all charts and for blackboard writing. This undoubtedly simplifies the early reading process for the children, and it avoids the confusion growing out of the use of two greatly different types of word patterns in reading materials.

(2) If children are to be taught to write in the first year of school, they should be taught manuscript writing because of its simplicity and its likeness to printed symbols.

(3) If early writing is to be in manuscript form, the children should use this form of writing until they have mastered it sufficiently to have it remain a valuable writing form throughout their lives. This means that it should be the accepted form for all writing for at least two or three years.

(4) Because of its superiority in speed for most pupils, there should be a planned change to cursive writing at about the fourth-grade level. This change is not difficult at this level and requires only a few months of teacher-guided practice by the pupils. Such practice should be determined by individual needs, as not all children have equal facility in learning to write or in modifying their writing.

(5) In the upper grades either manuscript or cursive writing should be acceptable. Each child should be free to use the style best suited to his own abilities and desires.

(6) If writing instruction is delayed until the child has learned to read well and until he has matured to a point where the complicated

movements of cursive writing can be effectively mastered without undue waste of time, it makes little difference whether he first learns manuscript or cursive writing. In any case, manuscript writing should be used by the first-grade teacher. If cursive writing is to be taught in the second grade, the transition should be gradual, and the ability to read cursive writing should be developed carefully. All children learning to read cursive writing should receive a careful introduction to it.

3. *Should a particular system of writing be followed?* This is another debatable question. As with the case of reading instruction, the teacher who has developed a good understanding of how children learn to write will prefer to plan her own writing curriculum. It is undoubtedly best to have all the children of a school practice the same general letter forms rather than to allow each instructor to teach any form he desires. Several general forms of writing in the same school can confuse the child. The writer remembers having had to change the form of the capital F in his signature on two separate occasions as a result of moving from one county to another where a different writing system had been adopted. This, of course, would not have happened in the modern school, as a few well-educated teachers would insist that a new pupil change his writing to conform to a particular system, but it was not uncommon in the past when teachers were slaves to courses of study, textbooks, and regimented procedures.

Much of the push-pull, oval making, and similar drills are of little value in learning to write legibly and with reasonable speed. These drills have been discarded for more natural ways of learning and there is no longer insistence upon exact forms, standardized postures, and extreme muscular movement so prevalent in some of the systems of writing. Some authors of writing systems have recognized the need for modification of the highly formalized writing of a few years ago. But it is still emphasized that no system will substitute adequately for a teacher's understanding of the psychology of writing, and that, given this, no special system is required.

4. *Are there "best" posture and movement patterns?* More and more it is being recognized that children differ so in their physical make-up that there can be no set posture which is best for all. While slovenly and physically harmful posture should be discouraged, it is usually best to have each child assume a position that is comfortable for him and conducive to his best effort. What is true of posture is also true of arm movement. Well-integrated movement is the end to be desired. This is neither complete arm movement nor complete finger movement but a co-ordination of the two. Certainly a cramped finger movement is to be avoided, as is the extreme emphasis upon free arm

movement. The movement and posture patterns that result in the best product for an individual child are best for him.

One has only to watch a group of college students during an examination or when at work in the library to realize that the exact posture and free arm movement characteristic of the elementary school writing period of a few years back does not function in later life. After all, the product is the important thing in writing, not the form used. The teacher should be careful not to jump to the conclusion that there are no learning principles which apply to the writing process. It can be proved that finger movement is more tiring than arm movement, that some letter forms can be learned more easily than others, and that small characters are generally too difficult for the young child to master. This section will have served its purpose only if the reader realizes that no set pattern is best for each pupil and that successful teaching of writing necessitates further study of how the child learns to write.

5. *Should special periods be set aside for writing instruction?* Writing is a complex skill, and it needs careful guidance by the teacher. This can best be given during special periods in most teaching situations. There is little need, however, for group practice on the same exercises. Writing guidance should be determined by the individual needs, which are seldom exactly the same for all members of the class. Progress in writing, as in reading, arithmetic, and spelling, is largely an individual matter. Most of the writing practice will be obtained in the preparation of reports, themes, and other manuscripts rather than in formal drill exercises. Any practice of a formal nature should be determined by the needs of the individual for special drill. Practice so based becomes purposeful and therefore much more effective than the formal and often boring group drill of the past. It is of the utmost importance that each pupil realize his own strong and weak points in writing, that he have a desire to improve, and that he be encouraged to check his progress against an acceptable writing scale at frequent intervals.

6. *Should pupils be allowed to use fountain pens?* The answer here is obviously "Yes." After all, most of their writing outside of the class room will be with fountain pens or with the typewriter. Very few adults will use the old-style pen if a good fountain pen is available. There is no defensible reason for barring the fountain pen from the writing period except that of tradition. At one time it was argued that the fountain pen should be barred because it was so constructed that it did not lend itself well to the correct finger and hand position; but this objection vanished with the breaking of "system bondage."

Developing Spelling Ability. The general trends in the teaching of spelling revolve around the following questions:

1. *At what time in the school life of the child should special guidance in spelling be started?* As in the case of the other fundamentals, many children have made progress in learning to spell before entering school. Some of them already can write their own names, can recognize all the letters contained in them, and know many or all of the other letters of the alphabet. Other children have had little or no experience in spelling.

There is little need for spelling until the child begins to write words. The need for writing, and consequently for spelling, develops at a later time in the school life of the child than the customary beginning place for teaching these essential abilities. In years past, when progress in reading was from the memorization of the alphabet to the word to the sentence, or when the phonetic method was used, spelling was an important part of the reading process. Such is no longer the case, and most children can read well long before they can spell many of the words which they are reading. Educators have learned that the child first recognizes the word by its general pattern rather than by the special combination of individual letters in it. The child attends to the letters as such only after he has come to recognize the word by its form. The difference between *cat* and *that* is a difference in pattern, not a difference in the order and number of the separate letters.

As emphasized above, spelling, especially in the primary grades, is an integral part of writing and should be so considered. It is doubtful whether there should be any formal spelling of lists of words during the first and second grades for many children. Spelling is learned through writing letters, stories, and other compositions. Some teachers have the children make their own dictionaries of the words they use in writing by entering them on 5" \times 8" cards or on slips of paper and filing them alphabetically in a box. Each child thus maintains his own dictionary, to which he can refer whenever he needs to spell a word. He is learning not only to spell but to use a dictionary to aid him in the spelling of new or unfamiliar words. Incidentally, he is also learning the alphabet.

Spelling lists will develop ultimately from the pupil's writing experiences and will form the basis for some special study, especially as the child's desire to write progresses to a point where he is slowed up to an undesirable extent if he does not know how to spell most of the words he needs to use. In the modern school, where child experiences encourage much self expression in writing, this need for some special study of spelling is noticeable in the latter part of the second grade for a few children and in the third grade for most children, although a few pupils mature so slowly that they have little need for this special study before the fourth grade.

2. *Is there a need for an adopted speller or spelling list?* A spelling book or list which contains the words most commonly needed by the pupils, with some scientifically determined listing of the order of need, is helpful as a guide to spelling instruction, especially above the primary level. It should be emphasized, however, that progress in spelling is an individual matter, that not all children have the same spelling needs, and that no spelling list can be devised that completely meets the spelling needs of any given group at any one time. The spelling list thus becomes more a minimum-essentials list, as well as a check list of individual progress, than a complete spelling curriculum.

3. *Should there be group instruction in spelling?* The spelling lesson in the intermediate and upper grades is more a word-study period than a study-and-testing period. Some group study is to be recommended if it is directed toward building spelling consciousness and developing a better understanding of the ability to apply functional generalizations in spelling. The spelling period is a time for spelling guidance in harmony with the individual needs of the different pupils, rather than a time for pronouncing and spelling set lists of words by all pupils. There is a place for group study of difficult words, for considering the application of spelling principles, and for vocabulary development. But the spelling needs and the spelling abilities of some children run far beyond those of other children, and any procedure that results in all children studying the same lists of words and progressing through a list or a book at the same rate is out of harmony with child nature and cannot be justified psychologically or pedagogically.

4. *Is there a place for oral spelling in the modern curriculum?* It is to be questioned whether oral spelling has a place in the school today. Spelling has little use except as one needs it in writing, as one is seldom asked to spell words orally unless he enters a radio spelling contest or expects to enter some profession such as primary school teaching. Spelling that does not function in actual writing situations is of little value. It is doubtful if time spent in spelling orally is as effective in learning to write words correctly as time spent in writing them.

5. *Is there a place for rules in the spelling curriculum?* The answer here is "Yes." There are several guiding principles which, if learned in functional situations, are real aids to spelling, and these should come continually into the group discussions and word study. Few derivatives need be learned separately if the child has developed an understanding of basic spelling principles through actually applying them over a long period of time. If he has learned to spell *read* and *consistent*, the child can spell *reading* and *inconsistent* also, if he has developed a functional

understanding of simple rules. He should learn to apply spelling aids not by memorization of the rules but through application of the rules over a period of years.

A second-grade boy, writing a letter to a friend, asked his mother how to spell *boy*. "B-o-y," she answered. "How do you spell *came*?" was the next question. His mother, not understanding the word, asked him to read the sentence. "The boys came to see me," the child read. "You should have used *boys*, b-o-y-s, rather than *boy* at the first of the sentence," said the mother. "I did," said the child in disgust; "I know you are supposed to add an s when there is more than one." Granting that this child's knowledge might get him into trouble if he tried to form the plural of *man* in the same manner, this does illustrate that very young children may become conscious of certain general principles of spelling and use them. Such rules should be a natural part of all spelling study and should be learned through continued application. The simpler principles will come up in the discussions whenever the children engage in a great deal of writing,

Developing Abilities in Oral and Written Expression. While usually not considered one of the three R's, the ability to express oneself well either orally or in writing is so closely related to the other abilities discussed in this chapter as to warrant its inclusion. Indeed, spelling and writing are inseparable parts of the whole pattern of written self-expression. They are the tools with which the child expresses himself in writing, while reading is the tool through which a child deciphers the written expressions of others.

The following generalizations for guiding pupil growth in this phase of self-expression are generally acceptable to modern educators:

1. *Improvement in oral and written expression grows out of purposeful situations.* The elementary school child of today is continually in situations in which he has need for self-expression, oral and written. So constant is this need that the formal language period is rapidly disappearing from the daily program in the elementary school, and to a considerable degree in the secondary school. Planned guidance has not been eliminated, nor is improvement a purely incidental matter. But language instruction is becoming a natural part of the situations in which a child has need for language expression rather than a formal subject in a special period.

A few years ago the author visited a second-grade classroom in which a post-office unit was being developed. The unit had grown out of the thrilling experiences with Christmas packages, supplemented later by the approach of St. Valentine's Day, and it had been in progress some ten or twelve weeks. A well-constructed post office, made of the sides of refrigera-

tor cartons, occupied one corner of the room. A letter box for mailing letters stood at the back of the room. A table at one side of the room was covered with books and pictures relating to the activities of the unit. Regular mail service was maintained in the room. Real stamps were sold at regular prices, to be affixed to letters and post cards written to relatives and friends. The mail was collected twice daily, and all outgoing mail was carried by truck to the real mailbox on the street corner. Incoming mail for the various children and the teacher was delivered to the school by the United States postman and was distributed by the room postmaster and his assistants. Each child had his individual mailbox in the post office and personally called for his mail. At the invitation of the teacher and the children, the author read several of the letters written for mailing that day and was greatly surprised at the quality of expression, the length of many of the letters, and the correctness of form. With few exceptions, each child could write his letter with proper beginnings and endings and address the envelope correctly with little or no aid from the teacher, an accomplishment often lacking in upper-grade children of formal schools.

These children were writing letters because they wanted to, and they were learning the necessary techniques and forms because they recognized the need for them. At the same time they were gaining valuable experience in oral expression.

Three of the children, who had interviewed the postmaster to find out how much it would cost to send letters by air mail, reported their findings that day to the class, with the additional information that letters to nearby persons should not be sent air mail. One child volunteered the information that his mother had received an air-mail letter from a distant relative the day after it was mailed. Several other children had similar experiences to relate, so that fifteen or twenty minutes of informal discussion followed. When the teacher asked if the children would like to hear a story of the air mail, the suggestion met with instant approval. The teacher produced a book from her desk and read a thrilling story of the air mail, asking, "Would you like to play the story?" as she laid down the book. A chorus of "Yes! Yes!" and "Can I fly the plane?" burst forth. Within a few minutes the story, with words and actions improvised by the children as the story progressed, was being played by a group of several boys and girls, with the remainder of the class looking on. At the completion of the play, it was discussed by the class, suggestions for improvement were made, and another group was allowed to play the story before time for recess.

2. *An understanding of grammatical principles, together with the ability to apply them in oral and written expression, comes through*

experiencing over a period of years. This is a growth rather than a drill process and is to be developed in functional situations. For instance, a third-grade child can and should learn that those words which tell the name of an object are called *nouns*, and that those which tell what a thing does are called *verbs*. This is accomplished informally and naturally in those situations in which the child is learning to talk and write in complete sentences about something in which he is interested. A child who over a period of two or three years has heard his teachers speak of *nouns* and *verbs* will make these words a part of his functional vocabulary. Other parts of speech can be added from time to time, with the more difficult concepts occurring during later years as the child develops the ability to think in more and more abstract terms.

The parts of speech should be learned through usage over a period of years rather than in any one year. The child should learn to use periods, commas, question marks, and quotation marks in the same manner, as he needs them in his everyday writing.

3. *A child will develop the ability to speak and write correctly and effectively only in situations in which he needs to express himself both orally and in writing.* The ability to organize one's thinking and to express one's thoughts in oral and written form is developed gradually through years of experience. There is no need to create artificial situations, as the modern school environment is such that the child is continually meeting problems which call for investigation, and report or which stimulate creative language expression.

4. *While instruction in the techniques should be in functional situations and incidental to the need for expression, it should not be accidental.* This point has been debated at great length during recent years and, like most such issues, is being settled on a common-sense basis. The primary teacher needs to have a good idea of those concepts and principles which are within the child's level of insight, and she should guide the children's activities so that desired growths are obtained. While a second-grade child can and should learn when to use a period in his writing, his thinking should not be confused by the introduction of the semicolon or the colon. Nouns and verbs are understandable by many primary children, but it is doubtful whether prepositions and adverbs should be introduced at this time.

General suggestions in the form of courses of study should be worked out to guide the teacher in the development of oral and written expression. These should be flexible in nature, should indicate general levels at which different concepts may be introduced, and should suggest ways and means of developing these concepts in natural situations.

The fly in the ointment, however, is that we know little about child

interests and abilities, and that the above generalization, which it is so easy to recommend, is almost impossible to apply in anything but a cursory manner. We have little scientifically determined evidence to indicate when children mature socially and mentally to a level where guidance in the development of specific concepts and abilities may be effective. Nor are there available many experimentally derived data relative to the effects of various teaching procedures on pupil learning. It is undoubtedly true that many abilities and concepts which have proved to be entirely too difficult for most children of a certain age when taught by a formal, subject-matter mastery or drill procedure can be developed gradually through an experience approach to teaching. This is one of the important fields of curriculum research still largely undeveloped, yet it is of greatest importance to all education.

5. *The value of voice culture should be increasingly recognized in developing oral expression.* It is only recently that teacher-training institutions have been much concerned with voice training as it applies to conversational activities. Consequently, few teachers are well enough informed to give effective guidance in the development of the children's voices, while entirely too many fail even to recognize the possibilities of such voice development in children.

PROBLEMS FOR STUDY AND DISCUSSION

1. Discuss the following controversial issue: The three R's alone can no longer be considered the fundamentals of elementary education.
2. The concept of reading readiness is replacing chronological age as the determining factor in beginning reading instruction. What psychological factors are involved in this concept? How can a primary teacher determine when a given child is ready for reading?
3. Many teachers still believe that the elementary school must accept the chief responsibility for instruction in the three R's: Other teachers believe that regardless of how good a job the elementary school does in developing the ability to read, write, and utilize mathematical concepts and processes in everyday living, the secondary school must accept responsibility for further development of these abilities. With which point of view do you agree? What, if any, psychological factors are involved in the issue?
4. What are the advantages and the disadvantages of the adoption of a given series of basic readers, together with the manual developed by its authors, in the teaching of primary reading? Would you apply the same line of argument to spelling and writing? Explain.
5. Many of the primary reading books, beginning with the pre-primer, are

based upon actual social living rather than being made up of tales of fantasy as were the earlier readers for little children. Defend or criticize this trend in the light of the aims of education and the nature of the young child.

6. Is the insistence upon an exact form of writing for all children in harmony with accepted psychological principles and a modern philosophy of education? Defend your answer.
7. What are the advantages and the disadvantages of developing much of the early reading ability of a child in connection with the activities of units of work? Is there a need for special instruction in the three R's other than that which may grow out of other activities? Why or why not?
8. Consider that you are the teacher of an unselected class of primary, intermediate, or upper-grade pupils in a small town school. What are some of the possibilities for developing an instructional program, including organization of the class, so that progress in reading, arithmetic, spelling, and writing may be an individual matter—in other words, adjusted to the individuals? What are some of the difficulties involved?
9. Some educators have interpreted the doctrines of interest and readiness to imply that certain mathematical concepts, such as fractions and division, should be removed from the curriculum of the primary and intermediate grades that first-grade children should not be taught reading, and that there should be little or no instruction in grammatical principles in the lower grades. The author maintains that these are misconceptions of the above doctrines. If these are misconceptions, what are the implications of interest and readiness for instruction in the three R's?

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11 · Developing Appreciations and Creativeness

Several years ago the author, in his capacity as Supervisor of Instruction for a small city system, visited the kindergarten room of one of the progressively inclined schools and became interested in an earnest young lady of five years who was completely absorbed in her work at one of several easels standing in a corner of the large room. Taking care to keep in the background so that his observation would not disturb the young artist, he watched her dab her brush into the green calcimine paint and with free and easy motion color the lower part of the paper, then wash out her brush, dip it in brown, and make what appeared to be a row of posts, each two or three inches high. Then, changing the direction of the strokes, she ran brown lines about a half inch wide and several inches long from the tops of the posts to the ground. Next she washed out her brush, dipped it in the green again, and with a circular motion painted a cloudlike effect on the part of each pole away from the upright section. She then stepped back to survey her work.

Feeling that an interruption at this point would not break the spell, and being consumed with curiosity, the observer asked the child what she was painting. The child looked up, surveyed the questioner as if she wanted to see what one looked like who could be so "dumb" as not to understand a masterpiece of clearness, and then said, "Don't you know the wind that blew all the pepper trees down along Magnolia Avenue last night? Well, that's what I'm painting."

Apologizing for not having recognized that which was so obvious, the observer resolved to use more diplomacy the next time he decided to explore the work of a creative child with a paintbrush.

Stimulated by a circus which came to town, one child of a kindergarten group said, "I like to go to the circus and play on the merry-go-round." Another said, "The bears were drinking at the pool in their circus cages." Still another said, "The lions gave a great big growl in their cages made of iron."

Little children have the ability to speak in a beautiful language and to express themselves through other media in a most satisfactory manner. Adults, lacking an understanding of the principles of child growth,



Self-expression through the arts.

are often distressed at the apparent disregard of the niceties of form and detail which seems to characterize the creative endeavors of the child. They do not always realize that many of these things will take care of themselves as the child develops increased ability to differentiate and as he masters techniques through experience under intelligent guidance. Too often in our zeal to make him an adult, with all the adult's stereotyped ways of expressing himself, we kill the very thing we should be striving to develop—the ability of creative self-expression.

There is little or no quarrel among educators regarding the necessity for children to learn to appreciate the beautiful in life and to express themselves well through the media of oral and written English, arts and crafts, music, and, to a lesser degree, bodily rhythms. There is, however, much diversity of opinion as to the best means of developing these abilities and as to the nature of such learning. Particularly, there has been a great deal of controversy over the nature of creative expression and its place in the curriculum of the school.

THE NATURE OF CREATIVE ABILITY

Creativeness in the past has implied the ability to create something new and lasting—to contribute to the culture of the race. Creativeness was thought of as a characteristic of the genius rather than as a part of the make-up of the common man. This point of view was expressed by an elementary school principal in the following words: "After all, it is very doubtful if there is a child in my school who possesses the ability to create. Oh, yes, there are a few who may have enough ability in music and art to earn a living by playing in a dance band or by preparing commercial advertisements, but even these will merely imitate the work of others. Our problem, primarily, is that of training our pupils to consume the contributions of those who really are endowed with creative ability. We can elevate their tastes only if we fill their environment with fine music, art, and literature, so that they will become conditioned to these rather than to the cheap and the vulgar."

Today, educators take an entirely different view of the nature of both creativeness and learning. Creativeness, as discussed in Chapter 2, is an integral part of the make-up of every individual and of the learning process itself. All children are creative, differing from each other in degree but not in kind. Creative ability is not an absolute ability which one either does or does not possess; rather, it is the very essence of learning. When a child expresses himself in a manner that is for him new and original or which is an improvement on his past performances, he

is creative in his actions. Under this concept, training and directing give way to educating and guiding, and imitative expression gives way to creative expression. Education thus becomes a developing process and drops many of the characteristics of "training." The concepts of insight and growth replace or greatly modify those of bond formation and conditioning as the bases of learning to appreciate the beautiful and to express oneself.

FACTORS ESSENTIAL TO CREATIVE EXPRESSION

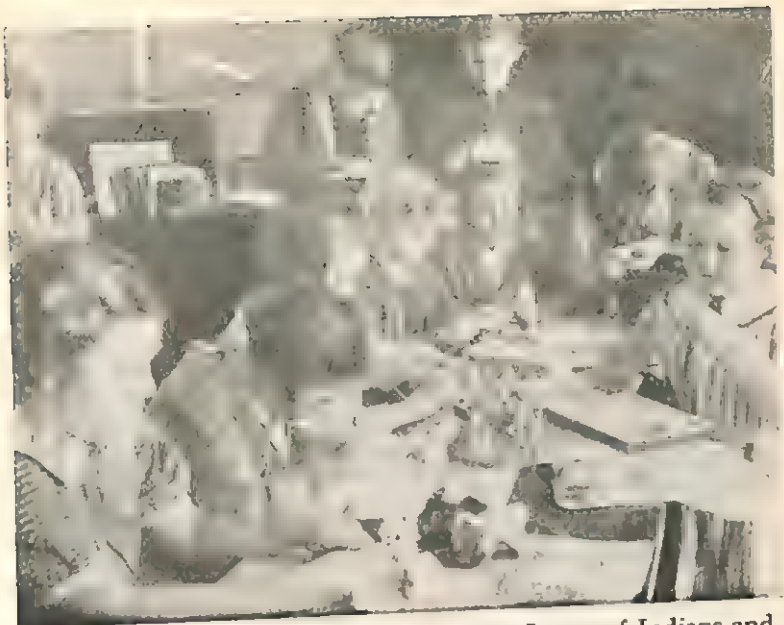
While creativeness is an integral part of the learning process, its development is highly dependent upon the many factors of the learning situation. It can be developed under the guidance of a skillful and understanding teacher or it can be driven from the classroom by strict adherence to a formalized course of study.

Among the factors essential to the fuller development of creative ability are the following:

1. *There must be a rich, stimulating environment.* Creativeness does not develop in a vacuum any more than it does from imitation and lesson getting. A challenging environment which encourages purposeful and varied pupil activity under the guidance of a skillful teacher leads the child to creative expression on a higher and higher plane. The modern school curriculum, stressing as it does child purpose, varied and rich experiencing, problem solving, freedom of expression under guidance, and activity at the child's level of maturity, stimulates and develops creative expression. The activities developed in the unit on "Weather" described in Chapter 4 illustrate this. There were many activities involving oral and written expression, music, arts and crafts, and rhythmic expression. In the development of these activities the children were under the general guidance of their classroom teacher, but experts in the fields of music and art were called in to give needed counsel and assistance, especially in the techniques of expression.

The illustrations found on pages 263-266 depict some of the creative activities in a fifth-grade unit on "Early California Missions" and a sixth-grade unit on "Living in Colonial America." They show the possibilities for stimulating creative expression through the experience curriculum.

2. *There must be freedom, desire, and purpose.* As has been indicated above, creative activity results only as the learning situation is purposeful to the learner, as the pupil has a desire to create, and as he has the freedom essential to the formulation and expression of his own ideas and feelings. Teacher guidance and leadership are essential to continued



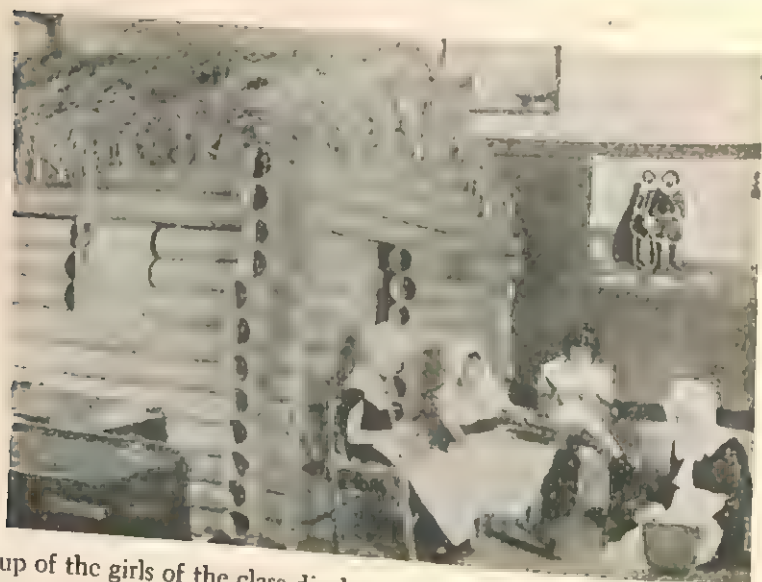
Final Work on the Mission. The children made figures of Indians and Spanish padres out of pipe cleaners and costumed them properly. Animals were carved from soap.



When the mission and background were completed, the small figures of Indians, Spanish padres, and domesticated animals portrayed the life of the mission during the early 80's. This project required much planning, great attention to detail, and the use of several mediums of expression.



Work of Sixth-Grade Children on a Unit on "Living in Colonial America."
The children made a colonial cabin and some furnishings. The girls in the center are hooking a rug.



A group of the girls of the class display the costumes used in their dramatizations of colonial life. The painting on the board is a pupil's conception of the landing of a group of early colonists. The girls were very much interested in making the costumes and in weaving rugs.



Work of a Fifth-Grade Class on a Unit on "Early California Missions." The class visited the San Gabriel Mission to gain firsthand knowledge of one of the older missions. They greatly appreciated the courtesy of the guide, who was much interested in their study and who did not seem to tire at their many questions.



The class wanted to build a replica of the mission, using adobe bricks. Three Mexican boys came in from a nearby Mexican school to show the class how to make adobe bricks.



Making a Replica of the Mission Visited. Some of the class tried their hands at making small adobe bricks for the mission. They experienced great difficulty in making the mission with the small bricks, however, so wallboard was ultimately used.



The children built a replica of the mission and reconstructed early mission life. Considerable experimentation was necessary to find satisfactory materials and to get colors to match those of the mission itself.

pupil growth along desired lines; teacher dictation, with assigned tasks and formalized lessons, is fatal to the creative urge. The child must have an idea which he wants to express, a problem which challenges him to his best endeavor, and a rich, experiential background if he is to express himself effectively in a creative manner. Continued imitation of adult forms, assigned lessons from day to day, and an absence of purposeful, challenging problems and ideas not only will fail to develop creative ability but will stifle it.

3. *There must be a sympathetic, creative, resourceful leader.* It has been suggested several times that the role of the teacher is that of counselor and guide. He must be more than that, however. He must be a dynamic leader who can stimulate and lead children into experience situations which develop the desire on their part to express themselves in better and still better ways. He must be able to provide the pupils with help in techniques, in the finding of materials, and in the development of ideas. He must be able to recognize good work done by the children.

Children cannot progressively develop creative ability in music, art, and story writing under the leadership of a teacher who is ignorant of the techniques in these areas. In such cases leadership should be obtained from other sources.

A group of sixth-grade children, working on a unit on "Westward Expansion," needed a desert scene for use as a background for a part of their culminating dramatization. The children could not get the proper perspective in their painting of the mural, so they appealed to the teacher for help. The teacher, unable to assist at this point because of lack of ability, recognized her limitations and appealed to another teacher who could help—the first-grade teacher of the school. This teacher agreed to come in after her own class was dismissed. The sixth-grade program of work was then rearranged so that the activity period came in the late afternoon for several days, and the mural was happily completed.

4. *Techniques are important in creative expression.* Contrary to some opinion, the progressive teacher does not minimize the importance of techniques in self-expression but realizes that progress in the ability to express oneself well in the several learning fields is dependent on a mastery of the techniques of expression in each field. The progressive teacher does take issue, however, with the long-established practice of imposing tedious hours of drill preceding the need for a given technique. The child needs to practice on letter formation in order to express himself in writing. He needs to learn how to use periods, commas, quotation marks, and question marks properly. He needs to develop the ability

to write in complete sentences, to use correct verb forms, and to utilize different kinds of sentence structures to obtain richness of expression. The pupil can improve his expression in the arts and crafts only as he learns to handle the various tools effectively, as he knows how to mix his colors and to mold his clay to get a desired effect, and as he can employ various lines and shadings to serve the end in view. All this is a part of the modern philosophy of teaching. But the modern teacher believes that these techniques can be learned best in situations in which the child has a need for them and in which such practice is therefore purposeful.

The child can improve his expression in the arts and crafts only as he becomes acquainted with a variety of materials and tools and as he has experiences with them. Further, he learns to use the necessary materials and tools only as he is guided into situations in which he has need for them. It must be remembered, however, that the tools and the materials are means to ends, not the ends themselves. The growth which comes through creative expression with a variety of materials and tools is the desired goal.

Long periods of drill on color charts are a relatively purposeless and ineffective activity; yet, a small group of children has been known to spend hours trying out different color combinations to get the particular brick color desired for the tile roof of a Spanish mission it was building. These children were confronted with a real problem. The corrugated cardboard being used for the roof was a dirty brown, and this affected the final result. The calcimine paint, when dry, was of a different shade than when wet, so applications of different mixes had to stand for some time before their true shades were apparent. The children discovered that they must keep records of each mix if they were to reproduce the desired shade in the quantity needed. Not only did these children receive practice in the mixing of colors in a practical situation, but they developed a scientific approach to problem solving. Several hours of formal drill on the making of color charts would have availed little, but with a direct need as the motivating force they drilled themselves for hours on the technique of mixing colors to obtain a desired effect.

Long hours of formal drill on penmanship, spelling, the making of color charts, sight reading, and other techniques of self-expression are liable to cause the child to develop a dislike for the very thing on which he is drilling. It would be difficult to imagine anything better calculated to kill the creative spirit than an unfavorable attitude, and such an attitude often results when drill on a technique precedes a need for such practice. The old argument that children need to master the various

techniques of self-expression in order to be able to express themselves creatively in later years has been disproved by the result of modern school methods.

It is not a question of whether children need to practice on techniques but of when this practice can be made purposeful and most effective. A child who has an idea which he wants to put in written form, in music, or in some form of arts and crafts eagerly searches for help and can be led to see the importance of practice if he is to continue to improve in his ability to express his ideas. The field of sports furnishes many illustrations of this learning principle. Junior and senior high school pupils will drill themselves for hours at a time in the various techniques of basketball and will eagerly seek suggestions for self-improvement, because they have a real motive in such drill. The same drill, if carried on under compulsion and before the pupils have a real desire to play basketball, will be comparatively meaningless and quite ineffective. An adult will practice putting, driving, and other phases of golf for long periods during the winter months if he is anxious to improve his game, yet he would find such drill most monotonous if purpose were lacking. Many football players seek jobs at hard labor during the summer months, not because they greatly enjoy toiling under the summer sun but because they want to be in first-class physical condition for the fall football season.

5. *There must be perseverance.* It has been said that creativeness, like success, is one per cent inspiration and ninety-nine per cent perspiration. There seems to be a rather general acceptance of the idea that creativeness just "bubbles out," that it is unconfined, joyful expression. While this may be the situation at times, it is much more certain to come as a result of hard, and at times tiresome, but purposeful labor. A poem may be rewritten several times before it satisfies the child. Long periods of planning and practicing may be necessary before a mural expresses what the individual or the group is attempting to portray. A group of children may revise a tune many times before it expresses their mood.

The child must be encouraged to look at the product of his labor critically, to evaluate it in terms of his own capabilities, and to strive continually to improve in his ability to create. He must realize the necessity of practice to improve his techniques, and he must develop the ability to see a thing through. He must appreciate the fact that satisfactory progress necessitates hard, often discouraging work. He cannot as a general rule be driven into creative self-expression. He can be made to write a theme, paint a picture, carve something in wood,

or even write a poem; but his expression is seldom creative in nature unless he has a purpose—an idea which he desires to express, something which he wants to make.

6. *There must be recognized success.* It is a well-recognized principle that successful participation is essential to good mental health and to creative expression. The child must have a feeling of having accomplished something worth while and of having this recognized by others as being well done. Social approval is as essential to the child as it is to the adult. No adult likes to work for a person who is always dissatisfied. The wise employer knows when to praise, when to suggest possibilities for doing things better, and how to stimulate his employees to increased effort in doing a job well. The successful teacher recognizes that the results of a child's activity must be judged not by adult standards nor even by the work of the more capable students, but in terms of the child's own ability to produce. What is poor work for one child is excellent work for another. The important thing is what has happened or is happening to the child in the process of doing—not the quality of the completed work as judged by arbitrary standards. Commendations for the pupil's best efforts, constructive criticism, and, when necessary, a frank discussion of work poorly done are essentials of good teaching.

CREATIVE AND APPRECIATIVE EXPERIENCING

While appreciativeness and creativeness are often spoken of as separate entities, they are in reality inseparable. Possibly one can have an appreciative experience without being creative, but it is doubtful if one can be creative without at the same time modifying his ability to appreciate.

This point can be illustrated by the cases of James and Philip. James attended a school in which much attention was paid to the development of creative expression, and rhythmic interpretation was part of the everyday activities of the children. As a first-grade child, he became an air-plane, taking off with a roar, soaring about the room, and landing gracefully. At other times he became one of a flock of sea gulls, a roaring fire engine, a puffing locomotive, and a tree swaying gently in the breeze or whipped by the fury of the winter storm. As James progressed through the second, third, fourth, fifth, and sixth grades he experienced rhythmic activity in its many forms, at times as a part of a culminating activity of a unit, but more often as a normal learning activity of the day. He had himself experienced the many emotions of rhythmic portrayal as he became a beast of prey creeping upon an unsuspecting victim, as he

fled with fear at the approaching hurricane, or as he slept peacefully in the tropical shade.

When Philip started to school in a nearby school, he was seated in one of the thirty-five neatly lined-up seats—seats which were so constructed that it was difficult for the children to turn around to whisper to their neighbors without being caught by the teacher. He learned quickly that school was a place where he must be quiet unless told that he could be otherwise, where he must obey his teacher, where he must sit still until his whole system ached for physical activity, where he must learn to read and write and figure like adults, and where imitation of adult forms of behavior was the order of the day. At Thanksgiving time he and his classmates memorized a little play about the Pilgrims and their first Thanksgiving and acted it out under the direction of the teacher. Parents exclaimed over how cute the children were and how well they had memorized their lines and learned their actions, much to the joy of the teacher, who had put in hours of hard work to achieve near-perfection. At Christmas time the children colored Santa Clauses and reindeer, learned songs about Christmas, and helped stage a school Christmas play. Expression was chiefly imitative in nature and was dictated largely by adult ideas of perfection. There was little or no creative rhythmic expression. For that matter there was very little rhythmic expression of any type, as the school was a place for work, not play.

As chums in high school, James and Philip attended the performance of a ballet troupe of international reputation. James saw it as a thing of beauty and thrilled at the performance. Philip was mildly interested at times, but slightly disgusted that men would become such sissies as to perform in a ballet production.

An appreciation is difficult to define, but in general it is thought of as a gratifying emotional response growing out of a satisfying experiencing of the beautiful in life. It is often thought of as a sense of value. Like creativeness, it is not an absolute quality which one does or does not possess, but a thing of degree. One person may have developed very little ability to appreciate certain types of music or art and yet thrill with emotion on hearing the music of his homeland or on seeing a beautiful work of wood carving. One child may love to watch the sunset and the rippling brook; another may be unable to keep his eyes off the graceful airplane overhead; another may derive great pleasure from hearing his mother or his teacher read the poems of Longfellow and of Poe.

Appreciations, like other learnings, develop through continuous experiencing. Children who have been reared in an environment filled with

beautiful music and whose experiences in that environment have been satisfying do not need to be taught music appreciation in any formal classroom situation. On the other hand, many children who have been forced to spend hours of practice at the piano when they wanted to be doing almost anything else have not only failed to develop a high degree of appreciation for the music which they were practicing but have actually learned to dislike it. The human organism tends to seek further experiencing in those areas where experiences have been satisfying, but to avoid those areas in which they have been distasteful.

Let us illustrate this point by two classroom situations. Miss Wagner teaches in the eighth grade of a small village school. She is pleasant, cultured, and university educated. She has a firm conviction that the children must come to know the great men of literature and to read their writings. Then there are the eighth-grade examinations which must be passed and which invariably contain questions about well-known writers or require the writing of a number of memory gems from literature. The children are required to keep notebooks giving a short history of the life of each author whose name is likely to appear in the examinations. During the year the pupils must memorize the usual selections of poetry. Miss Wagner is very strict and insists upon a high quality of work. Children are frequently kept after school because of failure to learn assigned memory gems, or because their notebooks are not up-to-date at the end of the month. Reading grades (marks) are awarded on the basis of daily work, notebooks, and the monthly and weekly examinations on the assigned readings. Various kinds of competitive games, special awards, and contests are employed to stimulate interest and to aid in the memorization of essential facts about authors and their writings. Miss Wagner's pupils always do well in the state examinations, and the high school teachers will testify that they have developed habits of punctuality and are able to follow directions well. However, very few of them have developed a deep liking for the literature studied, and they are not enthusiastic about enrolling in literature classes in high school. A survey of their library readings indicates that, on the whole, they avoid the better-known selections of fine literature and choose the more popular novels for their leisure-time reading.

Miss Davis teaches English in the junior high school of a small town. Like Miss Wagner she is well educated and highly thought of in her community. Her approach to the teaching of literature, however, differs greatly from that of Miss Wagner. While Miss Davis enjoys the writings of most of the great men of literature, she realizes that many of them are entirely beyond the comprehension of junior high school students except as these writings may be interpreted by an adult and reduced

to the child's maturity level. Miss Davis believes that the most important factor in teaching literature is to develop learning situations which are pleasant as well as stimulating. She is concerned with the attitude of her pupils and she always tries to present literature in such a way that the pupil's experience with it will be satisfying. Consequently, she reads much of the poetry aloud, or encourages the members of her class to practice on certain selections so they can read them well to the class. There is much discussion of the author's point of view, of the quality of the beauty or the story-telling element, but very seldom are there examinations, required written work, or assigned memory gems. There are many dramatizations, oral reviews of writings that have been enjoyed by different members of the class, and group studies of selected readings. Miss Davis is interested in creative writing, and she encourages her pupils to try their hands at poetry, short stories, and essays of various kinds. The best of these writings are published in book form each year under the management of a student committee, and much interest in creative writing has been developed over a period of several years. While there is no compulsion in the selection of materials for leisure-time reading, the pupils are subject to unobtrusive guidance from Miss Davis and the school librarian. Records are kept of each pupil's readings while he is in the junior high school. New books often are reviewed briefly by the librarian, and the children are encouraged to read them. No child feels that there are any special books which he must read, and no pressure is brought to make the pupils read books they do not like. The librarian reports, however, that a surprisingly large number of good books are being read and that there is a demand for the classics by the more capable members of the class. Recent motion-picture developments, which have resulted in the filming of many of the fine literary masterpieces, have aided greatly, and there usually is a class theater party when one of these films is being shown in town.

It will be noted that these two teachers have similar educational aims but that they differ greatly in their teaching approach, due to their different concepts of the learning process and the nature of teaching.

APPRECIATIONS AND UNDERSTANDINGS

To what extent, if any, is the ability to appreciate dependent upon the ability to understand? Undoubtedly the relationship of these abilities is very close—so close, in fact, that they are inseparable. True, a three-year-old child may exclaim over a beautiful flower or sunset, although he possesses only a very low degree of understanding of plant life or of the scientific explanation of the sunset. A theater patron

may enjoy a fine motion picture and know little of the technique of production. Some animals react to music, although they are probably unaware of its source. Without adequate understandings, however, such appreciations continue on the rather shallow plane of mere pleasure.

A child undoubtedly grows in his ability to appreciate the fine things of life as his understandings of them develop, provided he retains a wholesome attitude toward them and has a desire for further experiencing. If, as teachers, we become so imbued with the conviction that children must understand that we set up unhappy learning situations or plunge the child in over his depth, we may be destroying the very thing we are attempting to develop. Drill on sight singing before the child has developed a readiness for it has made thousands of children thoroughly dislike the music period. Entirely too many children think of the art period as a drill period and of the reading class as the place where they go to recite on studied selections, practice on reading techniques, or listen to the monotonous voices of classmates as child after child goes to the front of the room to read a bit from a story which each child has already read one or more times.

The elementary school experiences of a father and a daughter illustrate the difference in the approach to the development of music appreciation in the schools of yesterday and of today.

Mr. Lane attended school in a small town. During his first year of school life he was under the guidance of a new teacher who had been educated to teach in a manner different from the usual practice of the time. Songs were learned by rote, fairy tales were dramatized, and reading was taught by the then-new phonetic method. This teacher's methods attracted so much attention that she was invited to journey with her class by train to a nearby city to demonstrate these methods before the county institute. School was pleasant, the children were happy, and the parents were pleased. Music during this first year was an enjoyable experience. But when Mr. Lane was promoted to the second grade with the other members of the class, he came under the direction of a teacher of the old school. Discipline was rigid; drill on the three R's was the order of the day; recess and dismissal were things for which to live.

Mr. Lane was promoted again the next year and faced a teacher who was well known for her strict discipline and her high standards. With little or no ceremony the class was initiated into the formal music period. Only after considerable drill on note reading were the children allowed to sing the songs on which they had been practicing. Rote singing was a thing of the past. It was now time to learn to sing by note,

and this took months and even years of drill to perfect. The music period became a distasteful thing to Mr. Lane, who was not blessed with much musical ability, and the failing grades which he received added to his dislike. Music through the elementary grades remained much the same, with some relief being given by teachers who themselves lacked the musical ability essential to conducting sight-singing classes. The high school afforded a pleasant relief, as music was no longer required.

Now a mature businessman, Mr. Lane still is unable to sing by note and has very little appreciation for fine music, but he does enjoy popular radio music.

Mr. Lane's daughter Anne started school in the first grade of a public school well known for its progressive teaching. The children learned and sang many songs composed especially for children, engaged in much rhythmic interpretation of music, and enjoyed hearing the teacher read children's poetry during their story hour. A band was formed, and the children beat out the rhythm to simple music, using the usual instruments of the rhythm band, many of which were made by the children themselves.

One day, as several of the children were watching a mother chicken and her brood of newly hatched chicks, Anne exclaimed, "Pretty little chickens with feathers soft and yellow!"

"My," said the teacher, "that sounds like a poem. Would you like to learn it?" A few minutes elapsed and the children knew the words. "How would you like to make it into a song? Can anyone sing it?" Excited hands filled the air. "It is Anne's poem. Shall we let Anne sing it first?"

There was a chorus of "Yes," mingled with "I can sing it. May I sing next?" Several of the children volunteered tunes.

"Such pretty tunes!" the teacher remarked. "Which ones do you like best?" Several children thought Anne's tune best. A number of others selected Jerry's and Mildred's tunes as the ones they would like to learn. When the three children were asked to repeat their tunes, it was discovered that none of them could remember exactly how he had sung the first time. "What a pity," said the teacher. "We should have written them down."

"Can you write a tune?" asked Mary incredulously.

"Yes," said Miss Thomas "Would you like me to do it?" She drew a horizontal line on the board and asked Anne to sing her tune. As Anne sang, Miss Thomas made circles above and below the line as the tune went up and down. The children were thrilled at this crude but effective writing of a tune. Anne came home that night excitedly telling about the song she had written.

During the next few years Anne composed a number of songs, sometimes alone, sometimes with other children. Many of the songs of the children were written first on the board and later on paper. In the third grade each child had his own book of the original songs of the class. The children early had realized that they needed a way of indicating when the song speeded up or slowed down and when there was to be a slight pause in the music. The need for more accurate spacing of the notes resulted in the use of the staff. By the time the children had reached the sixth grade they had developed a high degree of understanding of music techniques and could read notes fluently for their age. They not only loved good music but had developed appreciations for many of the great compositions—appreciations which develop partially through having composed and written songs of one's own. Anne, as a result of her musical experiences, is on her way to a life of enjoyment of good music through appreciations based upon understandings.

MASTERPIECES IN THE SCHOOL OF TODAY

With revolt against formalism in teaching there is liable to be avoidance of those materials upon which the formalized program has been based. For instance, the use of masterpieces of literature, and the masterpieces of art and music, to develop appreciations is often criticized. However, many of these materials, which are deadening under a formalized approach, become very usable in the modern school. The level at which a given song, painting, or literary selection can be used must be determined of course by the social and mental maturity level of the pupils. Some selections are beyond the maturation level of most elementary schools and are not to be recommended for the class as a whole. Yet certain members of a class, because of special ability, experiential background, or intense interest, may profit greatly from them. For instance, an upper-grade boy of high reading ability and with an interest in historical writings may find a particular book highly interesting, although another pupil in the same class may be unable to understand it. A child coming from a home rich in fine music may have musical interests and abilities which can carry him far beyond the other members of the class in this area.

Certainly it would be a tragedy if the fine things in the culture of the past were to be lost because of our lack of ability to utilize them effectively in school. One of the big problems facing the teacher in the school is to discover the types of literature, music, and other materials in the aesthetic area which may be utilized at the various levels of the school, and to understand better the nature and needs of the individual

children in the group in order that intelligent guidance may be possible in the development of aesthetic appreciations.

PROBLEMS FOR STUDY AND DISCUSSION

1. The concept of creativeness has been considerably modified during recent years, so that practically all children are now considered to possess creative ability. Modern educators conceive the learning process itself to be creative. What are some of the more important implications of this changed concept for classroom teaching?
2. The development of appreciations within a given learning area such as literature or music requires satisfying experiencing within that area by the learner. Defend or criticize this statement on psychological grounds.
3. It has been stated that the development of appreciations requires the learning situation, including materials, to be within the maturity level of the learner. What are the implications of this statement for appreciative activities in the classroom?
4. A very controversial issue in developing the abilities of self-expression is that of the teaching of techniques. Defend or criticize on psychological grounds the point of view that drill on techniques should come after the child has seen a need for such practice rather than before creative expression.
5. It has often been said that creativeness must come through child purpose and that it seldom grows out of assigned tasks. On what grounds can you justify this point of view?
6. Educators today are emphasizing the necessity for successful participation in the learning activities of the school by every child. What, if any, implications does this have for creative and appreciative learning activities?

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12 · Evaluating the Educational Program

A CONCEPT OF EVALUATION

Evaluation primarily means appraisal. The term is applied to many aspects of living outside the school, and in recent decades it has become an accepted part of educational nomenclature. It is a much broader concept than measurement, but includes measurement as an integral part. Evaluation, as applied to pupil achievement, implies an appraisal of pupil growth in the development of desired behavior patterns. It involves testing, measuring, observing, and other means of determining the extent of growth; but it goes beyond this in attempting to determine the effectiveness of the total learning situation. More than this, evaluation is concerned with helping the pupil understand his own achievement and growth potentials, not only in the various areas of the school curriculum, but in all phases of living.

Evaluation of the curriculum implies, among other things, an appraisal of the teaching and learning process. It is an attempt to determine the effectiveness of the school in promoting desired pupil growth along the lines of the aims of education. This means a study of the teaching process itself and should include careful self-evaluation by the teacher.

THE PROCESS OF EVALUATION

Evaluation of the educational process involves appraisal of both the growth of the child and the total teaching situation. Evaluation of pupil progress requires, among other things, the following:

1. *Clarification of the aims of education by all concerned.* This is an all-important factor often overlooked in education today. The teacher, the parent, and the pupil often fail to develop a common understanding of the desired learnings which constitute the ends for which the

school is striving. Many parents consider the three R's the fundamentals of education, and most other learnings of secondary importance. Consequently, they become concerned about the time spent in school on activities other than those directly related to the three R's, on the assumption that the fundamentals are being seriously neglected. Teachers, on the other hand, see the total development of the child as a concern of the school, and are interested in the social, the emotional, and the physical development as well as in the purely intellectual. Educators see the responsibility of the elementary school as much broader than merely teaching the "basic skills." Socioeconomic concepts at the child's level of maturation; generalizations in the field of science; functional mathematical ability; competency in communication; creative expression in music, in literature, in rhythmic, and in the arts and crafts; appreciations in the aesthetic areas of living—all these and many more lines of growth constitute the aims of the modern school.

Much of the misunderstanding between the parents and the teachers, with the resulting public criticism of the present-day school program, grows out of the failure of the two groups to agree upon the aims of education. Evaluation of the educational process and of the growth of the child must be in terms of criteria. These criteria should be the aims of education conceived in a broad sense. A great deal of teacher-parent study of the real purposes of education is badly needed in order that there may be commonly accepted criteria by which to evaluate the effectiveness of the school and the growth of the children.

It is equally important that the pupils understand the aims of instruction, so that they may clarify their own goals and evaluate their learning experiences in light of these goals. It is important to them that their parents and teachers have a common understanding of these goals. Children can and do become quite confused when the teachers and the parents are at cross purposes regarding the aims of the school. It is important to them to share in planning the goals. Learning activities will become more purposeful and, consequently, more effective if the children understand what they are trying to learn and why, know that the teachers and the parents agree on these aims, and have had some voice in determining what these learnings are to be.

Lack of agreement on the aims of education and the nature of the evaluative process is often found within the school itself. Teachers may be encouraged, or at least allowed, to develop a classroom curriculum based upon broad aims of education, and then find that their own conceived, subject-centered tests, often given on a city-wide or county-wide scale. Obviously, the purpose of measurement should be the deter-

mining of progress in achieving the aims of education. If the tests do not fulfill this purpose, the teachers and administrators have failed to agree on what constitutes the aims of education, or those responsible for the testing programs have given only lip service to these aims.

2. *Self-evaluation by both the pupil and the teacher.* Evaluation, as conceived by the modern school, is more than a program of teacher appraisal of pupil growth; it is an integral part of the teaching and learning process. Children are encouraged to evaluate their own learning experiences, to judge their effectiveness in achieving the goals they have set for themselves. They are encouraged to study individual and group capabilities and to judge progress in light of these potentialities. They learn to modify and improve group and individual behavior so that better learning conditions will result. They study the materials of instruction with a view to their improvement.

The teacher is concerned with the teaching process and with her own activities and personality characteristics as these affect the learning of children. Some excellent self-rating forms for teacher use are available, and can be quite helpful. Co-operative evaluation of the learning experiences by the teacher and the pupil help in selecting and improving the more effective kinds of activities and in eliminating those which do not seem to contribute greatly to the aims of the group.

MEASUREMENT IN THE EVALUATION PROGRAM

Purpose of Measurement. Testing for results is an integral part of good teaching. Tests and measures not only help the teacher to check the results of his teaching, but they are indispensable as an aid to the better understanding of children. The development of the ability to use educational measures intelligently requires a great deal of study and experience. Among the major purposes served by a measurement program are the following:

1. *A testing program is an aid to the understanding of children.* There are available several types of tests and measures which can be of help to the teacher in his attempt to understand the children of his room. So-called "intelligence tests," when administered and interpreted by one well versed in their use, are of value in determining pupil potential in the more academic learning situations. Social adjustment inventories, diagnostic tests; and a few special aptitude tests are examples of evaluative instruments that can, when used expertly, furnish data that will aid the teacher in developing an adequate understanding of the children of his class.

2. *Tests can be helpful in measuring the progress of the children in*

the work of the school. There are some standardized tests which are well worth learning to use and interpret. Reading tests are an essential part of a good program of reading instruction. Spelling tests are of value if used to help the teacher in determining the general level of spelling achievement of the individual and the class. Teacher-made tests based upon the aims of the unit or curricular field assist the teacher in determining the growth of the children in those aims which lend themselves to objective testing. For example, carefully made tests can be used in checking growth in the desired understandings. To a lesser extent, the modification of attitudes can be detected if the teacher is fairly expert in constructing and interpreting attitude inventories.

3. *Testing aids in making an evaluation of the teaching process and in determining the effectiveness of the curriculum.* Tests constructed to measure pupil growth in those aims of education which lend themselves to the various kinds of educational measures are essential to a good educational program. Without the use of measures to test the results of instruction, teachers are "working in the dark." No teacher can claim to be even reasonably scientific in his work unless he is making every effort to determine the effectiveness of his teaching. This can be done only as he can determine with some degree of reliability the extent to which desired growth is taking place in the children as a result of his teaching. Tests can help materially in this undertaking.

4. *Tests are helpful in determining the causes of maladjustment in children.* In general, testing to determine the extent of social and academic maladjustment must be done by experts in the field. Children with serious problems in reading and those suffering from extreme social maladjustment normally require the aid of specialists. Scientifically constructed diagnostic tests and social-adjustment inventories are of help, however, in the preliminary examinations of these children.

5. *Tests are helpful to children in self-evaluation.* Tests devised to test growth in understandings and essential abilities may be so constructed that they can be scored and interpreted by the pupils themselves. Tests for this purpose may be performance tests rather than paper-and-pencil tests.

Kinds of Tests. Measurement, as indicated in the foregoing discussion, exists primarily to aid the teacher in understanding the individual child and his progress, to help the child evaluate his own self, and to aid in the evaluation of the teaching and learning process. Four general types of tests have been developed to serve these purposes in the school:

1. *Prognostic tests.* These tests are devised to determine the potentialities of the child, irrespective of his present stage of achievement. They

include general intelligence tests; special-aptitude tests in art, music, mechanics, and foreign languages; and other tests contrived to measure pupil potential in the various areas of learning.

2. *Achievement tests.* These tests are constructed to measure actual achievement in special-learning areas. Achievement tests may be either standardized or teacher-made. A standardized test is one for which norms have been established. For instance, a standardized reading test is one that has been given to large numbers of pupils of varying ages and school grades and has had averages calculated for each age and grade. A teacher can administer this test to a class to determine whether the scores made by each child and by the class as a whole are higher or lower than the average for children of that particular grade and age. Let us say, for example, that the norm, or average score, for a particular reading test for children aged nine years three months is 38. Any child, regardless of his chronological age, who makes this score is considered to have a reading age of nine years three months.

Numerous standardized achievement tests are available for most of the subjects of the traditional school curriculum.

3. *Diagnostic tests.* Tests devised to indicate particular points of difficulty for a pupil are called "diagnostic tests." These tests aid the teacher in diagnosing difficulties in reading, arithmetic, language usage, and other fields. A diagnostic test in arithmetic, for example, is organized so that there are a large number of problems dealing with each phase of arithmetic—addition, subtraction, multiplication, division, money problems, fractions, and so on. Each section is subdivided so that there are not only a large number of subtraction problems, for instance, but also a fairly large number of problems dealing with each type of subtraction problem. Diagnostic tests are invaluable in locating special pupil difficulties in those few learning areas which lend themselves to diagnostic testing.

4. *Adjustment measures.* With the increasing recognition of the guidance function of education, a number of inventory type tests are being developed to aid the teacher and the special counselor in understanding the child in his relation to the social world in which he lives. Numerous social-adjustment and attitude inventories, special-interest check lists, and similar types of measures are indications of the professional interest manifest in developing measures for these phases of child learning.

Recommendation of testing for the purpose of classifying and marking pupils is intentionally omitted here. It is true that educational tests, especially teacher-made achievement tests, are still utilized chiefly for this purpose in many schools, especially at the upper grade and secondary

levels. This use of tests is not in harmony with modern educational psychology or philosophy; rather, it grows out of the outmoded subject-matter-centered curriculum practices of the past.

An illustration of the points of view of two teachers will clarify this statement. Mr. Jackson teaches the seventh grade in a school in a small city. He believes that all children who are promoted to his grade should be able to do the arithmetic outlined in the city course of study for that grade, and he has the work outlined so that a certain portion will be covered each month. At the end of each month a test covering the work of that period is administered and report-card marks are assigned on the basis of the child's standing on this test and on his daily work. The children who have the highest number of points when the test scores are added to the average daily scores receive the highest grades, and those with the lowest number of points receive low marks or failing marks. The tests are objective in nature, and Mr. Jackson maintains that the marking system is strictly fair to each child since he receives the report-card mark to which his score, impartially determined, entitles him. Mr. Jackson's personal opinions, likes, and dislikes do not effect the grading; each child gets what he earns. Mr. Jackson believes that the use of carefully devised tests covering the materials studied not only aids him greatly in determining the mark each child should receive on his monthly report card but also helps him to determine promotions. He administers a standardized achievement test at the end of the school year, and considers the results of this test in finally deciding which children should be retained in the seventh grade for another year. Mr. Jackson is known in the community as a very conscientious worker, one willing to come early and stay late to aid children who need special help with their work.

Mr. Wilson teaches the sixth grade in a neighboring city. His philosophy of education differs somewhat from Mr. Jackson's and so does his use of tests. Mr. Wilson believes that the children who come to his room differ so greatly in their abilities in arithmetic that the work to be expected of them should be greatly differentiated. For a number of years Mr. Wilson has administered an achievement test soon after the opening of the school term. As a result of this standardized testing program, he has learned that each year he will have several children who are unable to do work of any greater difficulty than that generally expected of fourth graders and fifth graders. On the other hand, he always has a few children of exceptional ability in arithmetic who can progress far beyond the average pupil during the year. He believes that tests, both standardized and teacher-made, are indispensable in helping him better to understand each child's arithmetical ability and in guiding him in his

work in this area. He organizes the arithmetic so that the children can start at any point and progress as far as they are able during the year. Tests are used continually to diagnose special difficulties and to determine when a child is ready for more advanced work. Mr. Wilson believes that it is the duty of the school to take each child where it finds him and aid him in achieving mathematical growth as well as growth along the other lines indicated by the aims of education. He believes that this will not be done effectively if children of greatly different abilities are held to standardized assignments and courses of study. He thinks that each child should realize whether his ability in the field of mathematics is high, average, or low, and he maintains that parents should have this information along with regular reports of the pupil's progress. Standardized tests have a real value here, not for determining marks or promotion, but in aiding the parent, the teacher, and the child to understand the pupil's ability and to measure his progress.

Objective and Subjective Tests. If one were to examine the literature on testing of some fifteen years ago, he would discover that there was considerable controversy over objective versus subjective tests for classroom use.

Objective tests are those which can be scored objectively—that is, without the scorer's own judgment entering into the process. Types of objective tests with which the reader is probably most familiar are the true-false, multiple-answer, matching, and completion tests. These tests are arranged so they can be scored by the use of a key; hence, several different persons can score a set of papers and get the same results if the work is done accurately.

Subjective tests are those in which the judgment of the scorer enters into the scoring. The common essay examination is the best example of this type of test.

Most of the controversy over objective and subjective testing has disappeared, due chiefly to the following factors:

1. *The objective test has established itself in educational circles as a valuable measuring tool.* Few well-educated teachers would argue against its use in those situations which lend themselves well to objective testing. The value of the objective test as a measuring tool in experimental situations where a reliable measure is essential is being increasingly recognized.

2. *Some of the chief weaknesses of the early objective tests are being remedied.* Test makers and teachers are finding ways and means of testing objectively for understandings, abilities, and even attitudes, so that the criticism that objective tests are chiefly measures of subject-matter mastery is no longer valid.

3. *Advocates of the objective test are recognizing that the essay type test has a legitimate place in the classroom alongside the objective test.* With the decreased emphasis upon the use of examinations to determine report-card marks, promotions, and failures, many of the arguments favoring the objective test and many criticisms of the essay test lose their significance. If tests are to be used primarily to determine a student's rank in the class, it is essential that they be as objective as possible. If, on the other hand, their chief purposes are to help the teacher evaluate the classroom curriculum and to aid him in understanding the abilities of his pupils, the story is quite different. If a teacher is to justify giving Mary a grade of B and Alice only a C in science, with all the happy and unhappy consequences involved, one must be scientific and impersonal. If, however, the test is to determine in a general manner if Alice and Mary have gained fair degrees of understanding of the principles of power machines, or to see if each can carry through a research problem in the school library, it becomes not so much a matter of objectivity as of whether the type of test used will give the teacher a fairly good knowledge of each pupil's progress along the lines indicated.

The Place of Tests in the Classroom. 1. *Aptitude tests.* Of chief importance to the teacher in testing aptitude is the so-called "general intelligence test." There has been, and still is, much difference of opinion as to the use of intelligence tests in the classroom. Undoubtedly these tests have been misused, chiefly because their wide acceptance has resulted in misinterpretations by many teachers and administrators who were not well informed on the limitations of such measuring instruments.

The use of intelligence tests has been criticized by certain educators and psychologists who contend that the intelligence quotient, which is the ratio of mental age to chronological age, can be increased by improving the environment of the child. This established fact, they claim, invalidates the test. This point of view is quite representative of a rather common practice in American education—that of swinging from one extreme to the other. It is undoubtedly true that entirely too much faith has often been placed in the infallibility of the test as a measure of potential success in school. Admittedly the test often has been used as a basis for judging children rather than as an aid to the teacher in gaining a better understanding of the pupils so as to adjust the curriculum to them. As educators are becoming more guidance-minded, and as they are learning how to use and interpret different types of tests, this misuse of test results is being remedied.

The intelligence test is not so much a measure of general intelligence as it is a test of academic potential. It is fairly indicative of an individual's ability to succeed in the more abstract areas of learning. It does not

measure intelligence in such areas as music, art, mechanics, and social relations. The term *general* applied to these tests is a misnomer, as these tests actually measure ability in a rather narrow area.

A variance of an individual's intelligence quotient of several points from year to year and from test to test is to be expected and is not to be interpreted as indicating total unreliability of the measuring instrument. Henry, who has an I. Q. of 91 today, as determined by a given intelligence test, may have an I. Q. of 96, or even 86, in a few years. However, unless the child's environment is radically changed, the chances of his obtaining a score very superior or very inferior to a former score are slight. There are numerous exceptions to this generalization, as anyone who has had several years of experience in conducting testing programs will readily admit, but for the majority of children the intelligence quotients do not show a wide variation over the years. If a teacher realizes that the test result is an indication of a child's academic potential rather than an absolute measure, he is on safe grounds, and will find the test most helpful as one, but only one, of the factors to be utilized in understanding the whole child.

An intelligence test should be administered to each child every few years. If possible, every pupil should be tested soon after entry to the kindergarten or the first grade. The individual intelligence test is superior to the group test in the early years of school, and it should be utilized at this time. The child should be tested again in the intermediate grades, in the upper grades, and in high school. The test data should be entered on a cumulative record, so that the teacher or the special counselor will have access at any time to all test results for each pupil.

Intelligence testing has only one general purpose in the public schools: to aid the teacher and others in gaining better understanding of the child so that his years in school may be more effective and happy. One of the chief criticisms of the use of intelligence tests has been the utilizing of the results to classify pupils into groups of high, average, and low ability. As teachers are finding ways of providing for individual differences within an unselected group, this practice is gradually disappearing from the public schools. Unless the results of the intelligence tests are to be used in helping the teacher adjust the curriculum to the child, they have little classroom value and may easily result in harm rather than good.

For many years test makers have been experimenting with various measuring devices in the hopes of developing valid and reliable measures of aptitudes in music, art, mechanics, and special vocational areas. It is difficult to overestimate the value of such efforts. If we can determine reliably those children of high potential or of low potential in each of

the many fields of learning, it will add greatly to the effectiveness of the educational program, and especially to the guidance service. But although efforts along this line have met with some success, there are few special-aptitude tests which have value for the classroom teacher at the elementary level. Possibly the next decade will produce better tests of special aptitude, but at present their validity is too doubtful to justify placing much faith in them for prognostic purposes.

2. *Achievement tests.* Like the intelligence test, the objective achievement test has been widely criticized. Because the achievement test lends itself well to the measuring of subject-matter mastery and rather specific skills, it has been utilized chiefly for this purpose. This in itself is not objectionable. The testing of the abilities to read, spell, and calculate is most essential in the modern school. The achievement test, however, often has been used to compare the achievement of one school with that of another in a given city and county, and to measure teacher efficiency. As most achievement tests measure the mastery of traditional subject matter or progress in the three R's, their use for comparative purposes and teacher ratings has often compelled teachers to point their instruction toward high attainment in these areas, to the neglect of other equally important learnings. Teachers in the modern school, who emphasize the development of effective citizenship, personality, creative ability, wholesome mental hygiene, and other desirable pupil growths not measurable by paper-and-pencil tests, feel that the comparative use of these tests is unfair to them in that it forces them to hold to a traditional curriculum in order to save the scholastic reputation of the school and of themselves. They do not object so much to what the test measures as to what it fails to measure. The work of the school is liable to be judged on the basis of achievement in one very small area rather than by the whole curriculum.

Many standardized achievement tests, if used intelligently, are of considerable value in the school of today. The modern school is no less concerned than the traditional school with developing reading, spelling, writing, and mathematical ability. They may use different procedures and subject matter to develop competence in these fields, but the ends desired are much alike. Measurement is essential to the scientific approach to teaching. To the extent that good standardized tests are available for measuring progress in desired pupil growths, they should be used. If their limitations are recognized, many of the tests and scales devised to measure achievement in the fields of reading, spelling, writing, arithmetic, and language usage (not grammatical rules) are most usable and helpful in evaluating the school curriculum and in understanding better the child and his problems.

It is difficult to visualize effective reading instruction, whether conceived as a separate subject or as an integral part of major units of work or both, without the continual use of both achievement and diagnostic tests in reading. The place of present-day standardized tests in history, geography, literature, and similar subjects, however, is dubious. Because most of these tests are based upon traditional subject matter rather than upon the content of the modern curriculum, they fail to measure pupil growth in desirable attitudes and appreciations, basic social understandings, and many essential abilities. While test makers recognize this weakness, they find it difficult to overcome for several reasons. The modern curriculum is flexible rather than set, so that while one fifth grade may be developing the unit "Living in Mexico," another within the same city may be working with "Coal and Iron" and a third may be engaged with "Communication." There is no set area out of which the units develop from city to city and especially from state to state. When most state, county, and city courses of study were based upon certain well-established bodies of subject matter for each grade and were developed with definite textbooks in mind, it was entirely possible to devise a test to measure fourth-grade, fifth-grade, and sixth-grade achievement in history, geography, and hygiene. At present there is no set body of subject matter that every child in a given grade must study, so that the devising of standardized achievement tests in the several traditional subject areas of the curriculum becomes difficult if not impossible. Modern education calls for a new type of test, devised to measure pupil growth in the desired outcomes of education rather than in the mastery of traditional subject matter.

Teacher-made objective tests have a definite place in the classroom. Space does not permit a full discussion of ways and means of devising these tests for classroom use, but the reader should re-examine the tests given on pages 107-116 and reread the discussion of measuring outcomes of the unit on "Weather," pages 116 and 117. Objective tests can be devised to measure the development of those understandings and abilities which lend themselves to this type of measurement. To a certain extent, attitudes and appreciations also can be measured by paper-and-pencil tests. The real proof of growth in the latter, however, is to be found in the pupil's reactions to situations in and out of school. Is an attitude of tolerance or intolerance demonstrated in his daily social relationships in the classroom, on the playground, and at home? A child who fails to work in a willing and friendly way with other children has not developed a co-operative attitude, no matter how he may respond on an attitude inventory. A pupil may have studied about many of the great men of literature, know many facts about them and

their writings, and have memorized numerous "memory gems," but if his reading outside of school consists chiefly of sensational and cheap literature, he has very low literary appreciations, regardless of his score on a literature test. The real test of many of the desired outcomes of education is to be found in what the child is and does outside the classroom, rather than in what he is and does while under the close supervision of the teacher.

3. *Diagnostic tests.* Diagnostic tests are of value in aiding the teacher to detect the points at which a pupil is having difficulty. Their chief use is in connection with the teaching of reading, arithmetic, and language usage, and in similar situations where certain measurable habits or skills are essential to success. Diagnostic testing often enables a teacher to put a finger on the particular difficulties of the pupils, and it makes possible remedial teaching in the light of these findings.

Robert, for instance, is finding his arithmetic difficult and seldom gets the correct answers to subtraction problems. The results of a diagnostic test indicate difficulty with problems necessitating borrowing, especially where zeros are involved. Some special help by the teacher enables Robert to see the principle involved, and his trouble soon clears up.

Elizabeth's progress in reading is most unsatisfactory. An intelligence test indicates an average I. Q. Her parents have taken her to an eye specialist, who found no eye trouble. Elizabeth is finally sent to a reading clinic, where she is carefully tested for various types of reading difficulty. It is discovered that the child reads each sentence slowly, word by word, vocalizing as she progresses and often stopping to "sound out words" under her breath. Elizabeth is now in the third grade but has great difficulty in reading second-grade materials. An investigation into past reading experiences discloses the fact that Elizabeth was taught to read by the so-called "phonetic method" and that most of her reading in the first and second grades was oral. Elizabeth spent her first two years of school in an overcrowded, two-room, rural school taught by a poorly educated, underpaid teacher with little knowledge of the psychology of the reading process. A reading program that involves much reading of easy materials for combined speed and comprehension should bring Elizabeth's reading ability up to normal.

Diagnosis of such difficulties as the foregoing is much more than a mere matter of testing. Tests in some areas of learning may indicate the nature of the difficulty, but they do not point to the cause. Neither do all types of difficulty lend themselves to objective testing, even in such fields as reading, spelling, and arithmetic. Once the nature of a child's trouble is ascertained, the teacher must search for the cause so

as to plan remedial treatment intelligently. One child may read poorly because of faulty instruction in the primary grades. Another may have had excellent instruction but be handicapped by low academic intelligence, defective eyes, or a serious emotional disturbance brought about by some condition outside the school. Remedial instruction, to be effective, must get at the cause of the trouble, and tests in themselves do not necessarily furnish information as to the cause or indicate the nature of the remedy.

4. *Adjustment tests.* The school of today is vitally concerned with the development of personality and with the social adjustment of its pupils. Valid and reliable measures to determine progress in the development of desirable attitudes and behavior patterns and instruments to detect personality and social maladjustment would be invaluable. Since most of these measures are constructed for junior and senior high school levels and for college students, their use in the primary and intermediate grades is somewhat limited. Several attitude, personality, and social-adjustment scales and inventories are available for the upper grades, however, and their use by persons trained in their administration and interpretation is strongly recommended. With the increasing emphasis on counseling and guidance as a function of the classroom teacher, it becomes highly desirable that teachers be well informed in the use of these measures. This requires intensive study over a period of time and study of scientific measurement as an integral part of the education of all teachers.

OBSERVATIONAL RECORDS FOR EVALUATION

Measurement in education must be concerned chiefly with pupil growth along the lines of the aims of education. As has been suggested, progress in the development of many of the basic social understandings and essential abilities may be measured, to some degree at least, with paper-and-pencil tests. Some progress also has been made in the objective measurement of desired attitudes and appreciations. Many of the desired outcomes, however, do not lend themselves well to scientifically accurate measurement. A child's appreciation of the beautiful in nature; his ability to work and play with others in a friendly, co-operative manner; his integrity of purpose; his ability to express himself effectively before a group; his attitude toward other members of the family—these cannot be measured exactly, yet growth along these lines is as important as growth in the abilities to read and to solve problems in arithmetic.

The use of controlled observation, with anecdotal records, has been

JOURNAL

Name of child George M. Sex M Date of birth 3-16-29
 School University Elementary Grade 5 Recorder _____
 Name of parents _____ Address _____ Tel. No. _____
 Father: Occupation Professional Birthplace _____; Mother: Occupation _____ Birthplace _____

Note here serviceable items from the school records or other sources. These may include intelligence quotient, personality or achievement scores, and data on family conditions:

Date	Incident Outstanding characteristics and accomplishments. Personal and social behavior problems. Interviews with the child, parents, or others.	Notes Explanation of incident, results of fact finding and treatment interviews, decisions, recommendations, actions, and notes on progress.
1-14-38	Secret of the Rosewood Box.	George came up voluntarily to talk about this book--remained and read alone a few minutes.
11-4-38	George told at lunch about his mother expecting a baby--said, "Isn't it funny how many children in this grade have new brothers or sisters"--enumerated four boys and added "and I'm going to have a new baby--hope it's a brother!"	Boys have a very matter-of-fact way of speaking which is quite wholesome.
1-20-38	George asked M. today--"Do you ever wish you were dead?" I did not get any more of conversation. M. replied in the negative and the subject was dropped.	Wonder if this is indication of reluctance to have a baby in the home? Might bear watching.
1-13-39	George was interested in "pseudodactyl". Drew a picture of it which was put in case. Went to library today (graduate) to find origin of word and meaning in large dictionary. He found it came from the Greek--"tinged finger."	He was very pleased with this--entirely independent in attitude. Later showed me item in dictionary and picture which he copied.
2-23-39	Mention made following reading of Perri that Salten the author executed in concentration camp because he was a Jew. George was very incensed about this. After lunch he said "I'm going to make a picture of Hitler and show a lot of American soldiers shooting him full of holes."	
3-7-39	I put 20 new numbers sheets on shelf today. George worked 13 this morning--several more in P.M. during work time--and all 20 in 2 days--with very few errors to be corrected.	

Form #116 8-17 124 B

First Page of Cumulative Record for a Pupil in the Elementary School of the University of Michigan

Date	Incident	Notes
	Outstanding characteristics and accomplishments. Personal and social behavior problems. Interviews with the child, parents, or others.	Explanation of incident, results of fact finding and treatment interviews, decisions, recommendations, actions, and notes on progress.
	For some time--and at his own request George has been sitting at desk apart from all the others--and near the teacher.	
3-23-39	George brought a picture of chair and stool with woven seats--asked if he might make them in shop. We discussed price--looked up cost of weaving reed in catalog--decided to figure cost of wood without reed. He worked this problem out thoroughly, understanding each step.	His idea was to write for reed--and pay for it himself--if school would furnish wood. He wrote letter for his own catalog and samples of reeding.
	Later--Mr. J. reported we lacked tools for such work--no equipment for rounding rounds or drilling holes. (He seemed to think the job too difficult for George to undertake.) George smiled mistfully and said, "My Dad thought it too hard for me."	George seemed disappointed, but took it very well--seemed quite resigned--did not get cross or sulk--as he might have met disappointments a while back.
4-17-39	George has the New Winston Dictionary on desk--asked for it, saying, "How come D. gets it all the time?" I agreed it was certainly his turn.	
4- -39	George spends morning after morning in reading dictionary. Sometimes a group work together. Then the procedure is thus: One of the boys locates a strange word. All the others scramble in the dictionaries to see who can locate it first. Then they read and compare definitions. M., B., P. and George are a frequent foursome. Often E. and George are alone, however.	
4-7-39	"Well, I got a sister instead of a brother," he said smilingly. "I'd rather have had a brother,"--beaming gaily though.	
5-28-39	George made no errors in the music memory test today. He was so delighted he shrieked and whooped for joy--as though quite surprised--and certainly happily so. He said over and over while taking test-- "This is fun; that is easy; make it hard." Five others had all songs correct.	Miss F. played 28 phrases from familiar songs. Some were quite hard to recognize.

found helpful to many teachers in evaluating those types of pupil growth which it is difficult, if not impossible, to measure objectively. The anecdotal record is a written statement of observed behavior, giving the circumstance, date, and place, but usually no teacher interpretation, of an actual event. So far as possible, it is an impersonal account of exact happenings which may be of value in understanding the behavior pattern of a child. A single recording about an individual child may have little significance in itself, but a number of such recordings over a period of time may prove of great worth.

The illustrative record on pages 292 and 293 is taken from the records of the University Elementary School, University of Michigan, which has an exceptionally fine system of keeping and utilizing cumulative records. The record is unchanged except for the child's name, but it is incomplete for lack of space. The subject of the record, whom we will call George, comes from a good home, is superior mentally, and is not a problem child. A reading deficiency was corrected in the intermediate grades, after it had caused George's parents considerable worry. Socially, George has had to overcome problems of sportsmanship and of learning to take disappointment gracefully. In addition to the anecdotal record journal, the school keeps records of conferences with the parents, of psychological examinations, health examinations and adjustment inventories, of the social and educational achievements of each pupil.

RECORDING AND REPORTING

Two additional problems are parts of the whole evaluation program: (1) reporting pupil progress and (2) keeping and using cumulative records. These have been discussed in some detail in Chapters 7 and 13, but they are mentioned here to emphasize the fact that guidance, evaluation, classroom organization, and curriculum development are all integral parts of the whole educational situation. They may be separated for convenience of discussion, but they cannot be separated in the actual learning situation.

PROBLEMS FOR STUDY AND DISCUSSION

1. The term *evaluation* is often used as a substitute for the phrase "tests and measurements." Does this phrase represent an adequate concept of evaluation? Explain.
2. Many educators are insisting that evaluation is part of the learning process itself. Explain what this means.
3. Objective testing has had something of a setback from its prominence of

- two or three decades ago. Why has this happened? Some educators go so far as to condemn all objective tests and to raise doubt as to whether they have a place in the school program. Criticize or defend this point of view.
4. Plan an evaluation program for some level of the elementary or junior high school, considering chiefly teacher evaluation of the curriculum and of child growth rather than pupil self-evaluation of experiences.
 5. Do tests and measurements have any place in a pupil's evaluation of his learning activities? If so, how? What is the relation of this to the conventional marking system?
 6. There has been much criticism of city-wide testing programs. Why? Is there any need for such a program? Explain.
 7. Research workers in the field of measurement are devoting much time and energy to developing ways and means of measuring pupil growth in attitudes and appreciations and adjustment to environmental situations. Why is this so important? Would such measures, if valid and reliable, be of much value in elementary schools?

READINGS FOR FURTHER STUDY

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- CUNNINGHAM, RUTH, and ASSOCIATES, *Understanding Group Behavior of Boys and Girls*. Bureau of Publications, Teachers College, Columbia University, New York, 1951. Chapter 11.
- DRISCOLL, GERTRUDE, *How to Study the Behavior of Children*. Bureau of Publications, Teachers College, Columbia University, New York, 1941.
- LEE, J. MURRAY, and LEE, DORRIS MAY, *The Child and His Curriculum*. Appleton-Century-Crofts, Inc., New York, 1950. Chapter 15.
- LINDGREN, HENRY CLAY, *Psychology of Personal and Social Adjustment*. American Book Company, New York, 1953.
- MACOMBER, FREEMAN GLENN, *Teaching in the Modern Secondary School*. McGraw-Hill Book Company, New York, 1952. Chapter 10.
- National Society for the Study of Education, *Thirty-fourth Yearbook: Educational Diagnosis*. Public School Publishing Company, Bloomington, Ill., 1935. Sections I-IV.
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The Activity Movement. Public School Publishing Company, Bloomington, Ill., 1934. Chapter 7.

RAGAN, WILLIAM B., *Modern Elementary Curriculum*. The Dryden Press, Inc., New York, 1953. Chapters 14 and 15.

ROSS, C. C., *Measurement in Today's Schools*. Prentice-Hall, Inc., New York, 1947.

STRANG, RUTH, *Reporting to Parents*. Bureau of Publications, Teachers College, Columbia University, New York, 1947. Chapter 4.

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13 · The Teacher as Counselor

A GUIDANCE CONCEPT OF EDUCATION

In the early years of the guidance movement, guidance was conceived primarily as the function of helping youth make reasonably intelligent selections of vocations. As such, it was confined chiefly to the secondary schools, and was thought of as a job for vocational specialists. This narrow concept of the function of guidance was soon modified to include other aspects of living, and now is conceived to be as broad as life itself. In fact, it is difficult to define "guidance" without defining "education" at the same time. Consequently, educators speak of a "guidance concept of education" rather than attempting to define "guidance" as a separate function in education. In general, it may be said that guidance is the process of helping children and youth to better understand themselves and to be able to make reasonably satisfactory adjustments to the big problems of living. Stated differently, it is concerned with the development of well-integrated personalities—the development of individuals able to face and solve the major problems of living, or to make adjustments to them, to live in a worthy manner and be reasonably happy. This development can also be said to be the function of education. Guidance is so much an integral part of the total educational process that it is difficult, if not impossible, to separate it except for the purpose of discussion, as the following example will illustrate.

An eighth-grade class was developing the unit "Conservation of Our Community Resources." The pupils were trying to gain a better understanding of the problems involved and to find out how their community was solving, or attempting to solve, its conservation problems. In connection with this study the problem of recreation was raised, and the question of whether or not this is a conservation problem was asked. A consideration of the meaning of the term *conservation* convinced the class that it is a problem of human conservation, since recreation is a vital factor not only in the wholesome development of the individual but in the conserving of both physical and mental health. The class, consequently, launched an investigation to determine the

extent to which the community was recognizing the function of recreation and providing adequate facilities and wholesome activities. The work of various community character-building agencies was studied. Recreational agencies of various kinds were surveyed, and the importance of a recreational program for the individual was considered. Students were encouraged to think of their own recreational plans and to consider them seriously in planning their high school programs. The boys' and girls' counselors of the high school were invited to meet with the class and explain the possibilities in the high school for recreational activities, both class and extraclass. The teacher then invited the children to discuss their recreational plans with her individually. The unit of work thus developed real recreational guidance for the members of the class, although there were no formal guidance periods labeled as such.

THE FUNCTION OF GUIDANCE

It has been emphasized that the good teacher is a leader of child activities and a constant counselor and guide. A teacher may be a director of child activities—assign exact lessons, direct the child's movements about the school, and be a small dictator of pupil experiences—or may assume the role of a leader whose chief purposes are to help the child understand himself and his needs, to guide him into worthwhile experiencing, and to help him develop the ability to live fully and effectively.

Guidance, then, is concerned with the whole life of the child. What the child is doing on the playground, in the home, and in the community is a vital factor in determining what the child is becoming. Whether the pupil is spending his evenings with an unsupervised gang on the streets or is kept busy with worth-while activities of home, church, Boy Scout and Girl Scout organizations, and other character-building institutions is of greater importance in determining the child's character and personality than anything the teacher can do in the classroom. A child who is insufficiently clothed and fed, who needs medical or dental care, who is having eye trouble, or who is living under home and community conditions conducive to poor mental and emotional health cannot profit fully from classroom instruction. If, as it is claimed, the function of education is to aid the child in living richly and effectively, the school is thereby committed to an educational philosophy which implies a functioning guidance program concerned with the child's mental, emotional, social, and physical well-being and development.

This does not mean that the school should take over the functions of the home, the church, and other institutions of the community, but

rather that it should work closely with all these agencies in the interests of the pupil. The school is interested in the successful functioning of all character-building agencies in the community, and it should counsel the pupils with regard to their participation in the activities of these organizations. The attitude taken by a principal, a teacher, or the staff of an elementary or a secondary school may well determine the success or failure of a Scout troop or other community organization, even though the school has no direct connection with the sponsoring group.

Guidance is *not* dictation. The teacher, in the role of counselor, helps the child better to understand himself and his environment in the hopes that he may arrive at more intelligent judgments than would otherwise be possible. The purpose is to help the child set desirable and attainable goals for himself—to make better choices—not arbitrarily to determine or to dictate the child's activities. Children learn to make wise decisions by so doing, not by following dictation.

GUIDANCE IN THE ELEMENTARY SCHOOL

Need for Guidance. In what ways do elementary school children need guidance? For convenience of discussion, the guidance field is often broken up into the areas of health, recreational, social, educational, and vocational guidance, or similar divisions. These areas merge into one another and should not be thought of as separate entities in the performance of the guidance function of education.

The need for continual health guidance (mental and physical) will be recognized at once. Much health instruction may be of a group nature and may be informational in character, but the health needs of any one child are largely an individual matter. Mary comes from a home hard hit by poverty and is undernourished and poorly clothed for the cold of winter. John has had a serious illness, and he has been advised by the family physician to avoid strenuous exercise for several months and to take a rest every afternoon. Wilfred has defective eyes and gets a headache if he studies too long at a time. Mabel's teeth need attention badly. The little girls sitting near Jackson complain that he "smells," and the teacher has the problem of finding a means of getting Jackson bathed more regularly without offending the parents or unduly embarrassing the child. Ruby cries too easily if she is hurt physically or is not chosen for the team. Henry, who has a heart difficulty, insists on playing football and running races, regardless of the consequences. James is exceedingly reckless and takes foolhardy chances on his bicycle. Lucille is so timid that she is afraid to walk home alone after school. Each of these children, as well as every other child in the room, presents a unique

problem requiring skillful teacher and parent guidance. In some cases the need of a specialist is apparent, but not even then is the teacher's responsibility diminished.

The need for recreational guidance is less apparent, but no less real, in the elementary school. The interests of adults are largely determined by those developed during the earlier years of life. Children who learn to love the out-of-doors, who develop appreciations in literature, art, music, and drama, will find these likings influencing their recreational life in later years. A boy who has come up through Scouting and who has advanced to the rank of Life Scout or Eagle Scout finds interest in boys' organizations and in the activities which have become so much a part of these groups.

There is need not only for recreational guidance to interest children in wholesome activities which can carry over into adult life but also for wholesome recreational experiences aimed at the full development of the girl and the boy as children.

Ted, a fifth grader, came home from school one day and asked, "Daddy, why won't the boys play with me?"

"I don't know," said the father. "What seems to be the trouble?"

"Well," said Ted, "they don't seem to want me on their teams. I never get chosen until last, and then some of the fellows crab about it."

Further discussion brought out the fact that baseball was the game of the day. Ted had come from a small rural school and had not learned to play the game. The father made it a point to discuss the situation with the teacher at a time when the child would know nothing about it. As a result of the conference, the father got Ted a bat and a ball and played with him evenings. Ted soon became proficient at throwing, catching, and batting the ball, and he was not only accepted as one of the gang but soon became somewhat of a leader on the playground. In this case the teacher had failed to see the need for recreational guidance until she had the conference with the parent. She had not sensed that the child was unhappy, although she had noticed that he often spent his recess looking at books rather than playing outside. She had assumed that he preferred to do this and had not investigated the matter.

The importance of guidance in social relations has been recognized by well-educated primary teachers for years, and considerable thought has been given to developing a primary curriculum that is social in nature. The young child is an individualist; he must learn to get along with his fellow beings in a friendly and co-operative manner. The modern primary school has long considered socializing activities to be fundamental and has developed much of its program with this in mind.

While most social guidance is quite informal and generally unknown to the child, it is nevertheless purposeful on the part of the teacher.

The first grade of School M is composed of thirty-one children from an average American community. All are of native parents except Chang, a Chinese boy, and Lupe, a Mexican girl. Ruth, Maxine, James, Andrew, and Marie are the outstanding leaders of the group in most activities, while Evelyn, Jane, and Larry are the followers—mild-tempered, rather timid, and easily dominated by the others. Jack is very much of an individualist, even for a first grader, and he has never learned to play with other children. He is an only child in a fairly well-to-do home and has the best of care. His mother, however, is overconcerned for his physical and social welfare, and she does not think it a good thing for him to mix with the other children. She brings him to school and calls for him at the close of the day. Howard, on the other hand, has had the run of the neighborhood ever since he was able to walk and comes and goes as he sees fit, often not getting home from school until dinner time. Miss J., who teaches this room, is aware of most of these individual problems, and she keeps them in mind in her teaching. She often creates situations which will throw Evelyn, Jane, and Larry together, and she tries to avoid getting them too often into situations where they will be bossed by the more dominating personalities in the room. She hopes to develop some leadership ability in these children by creating situations wherein they will have to exercise initiative themselves in the solutions of their problems. She often puts Ruth, Maxine, James, Andrew, and Marie together in order that they must follow as well as lead. She takes every opportunity to get Jack interested in planning and executing a project with some other child, in order that he will develop the ability to work and play with others. She makes it a point to call attention to Lupe's fine art and to Chang's skill with tools in the hopes that this will make the social position of these two children more secure and help them gain the respect of the group.

The description above is not at all exaggerated; in fact, it is probably a conservative account of a typical first grade. It presents a problem of social guidance that faces all primary teachers—the problem of helping children of greatly different inherited and environmental characteristics to learn the art of living together. While superior elementary teachers have generally recognized this problem, they have not always sensed its implications for social guidance. For instance, one would not usually think of the problem of successful marriage as being of particular concern to the elementary school teacher. Most educators would properly argue that the elementary school child is too immature socially and physically to be giving serious thought to this matter. Yet the very

characteristics which make for happy or unhappy married life are being developed throughout the elementary school. Selfishness, unwillingness to co-operate with others, lack of a sense of responsibility, and similar characteristics are all-too-common elements of wrecked marriages. A first-grade child who is quarrelsome, who cannot work and play well with others, and who always insists on having his own way is a potential defendant in the divorce court. A boy who leaves the junior high school with little or no serious purpose in life except to get by as easily as possible does not make a good husband and father later, unless some miraculous change takes place, and the chances are against that unless the high school exercises the influence in which the elementary school has failed. A girl who dislikes babies and the work of the home and who is primarily interested in her own good looks may become an actress or a model but she is not apt to make a successful wife, particularly if she marries a home-loving man.

The problem of teaching is a problem of continued educational guidance—helping children to select worth-while educational activities. A teacher who counsels with a girl about taking piano lessons, who discusses with a committee the possibility of utilizing the medium of art as a means of presenting an idea to the class, who talks over the camera or science club with the children and explains the purposes of each is engaged in educational guidance.

As the child nears the end of his elementary school career, he is faced with the problem of entering a new institution, either the junior high school or the four-year high school. In either case he should be well oriented to the new situation before entering. In some cities the problem of articulating the elementary and secondary curricula has been so well solved that the transition is made easily with a minimum of adjustment difficulties. In other cases the child enters an institution greatly different in organization and even in purpose from the elementary school he has attended. The first year's program may be made up entirely of required subjects so that his chief problem is to get acquainted. This is particularly true if the child enters a junior high school, as electives in the seventh grade are not common. If he enters a four-year high school, however, he may face the problem of selecting not only one or two electives but even the particular course he is to follow in high school. In many instances he must choose between an academic course, which is chiefly college-preparatory in nature, and a course leading directly into vocational training. Before making such important decisions the child should have given considerable study over a period of time to the problems of high school education; and this is possible only if the elementary school is aware of its responsibility for educational guidance and has

a functional program in operation. The responsibility falls directly on the shoulders of the teachers in the intermediate and the upper grades, as the placé for such guidance is in the elementary school, not in the high school, where it is too late to do any very effective guiding in this matter.

Some maintain that the elementary school is not the place for vocational guidance. If by vocational guidance is meant the actual selection of a vocation with the expectation that training will start immediately in the high school, this viewpoint is defensible. But if by vocational guidance is meant leading the child into experiences which will give him insights into the vocational world, which will stimulate him to think seriously of the time when he will be earning a living, and which will lead to the development of those personal characteristics essential to vocational success, then vocational guidance is a continual function of the elementary school. It is true that any vocational choices made by elementary school children are transient; this is the very nature of the situation. But it is far better that the child be making vocational plans and be thinking about them, even though they are almost certain to change several times during his school life, than that he go through school giving little or no serious thought to the time when he will have to accept such responsibilities. This is particularly true as the child reaches the upper grades or the junior high school. The pupil with a purpose in life is in a much better position to make intelligent choices and to form educational plans under wise guidance than is one who is not interested and who has little or no concern for his vocational future.

Suggestions for Guidance. 1. *The heart of the guidance program in the elementary school is the teacher.* There are some phases of the program which must be organized on a school-wide basis; however, most of the counseling will take place in individual classrooms. It will be successful only if the teacher senses the problems and is capable of developing that friendly relationship with both children and parents which is so essential to effective guidance. Unless the teacher knows the child and his home and community environment intimately, he cannot counsel intelligently nor can he achieve that close teacher-parent co-operation which is necessary in the solution of difficult problems.

The teacher should not entertain the fallacy that guidance consists primarily of solving problems of serious maladjustment. Possibly a good point to remember is that "very few children are serious problem cases, but all children have serious problems." Children need to work out their problems themselves. They often need protection from the indulgent or anxious parent in order to do this. Many of the problems of children are beyond their level of insight and are of such a nature that

boys and girls are unable to do much about them without assistance. A child cannot help it if his mother will not let him grow up, nor is it his fault if he is allowed to "run wild." If his teeth or eyes are defective, he needs the aid of an adult specialist. If his parents do not see the necessity of such attention or if they are unable to afford it, the school must do what it can to have the child properly cared for.

Most guidance consists of helping boys and girls grow up normally. It is developmental rather than adjustive in character. It helps children to understand the world in which they live and to develop in harmony with social and physical forces. If one asks, "How does this differ from education?" the answer is, "It doesn't." Guidance is an integral part of education, not a separate service. The best teachers are those who have a guidance concept of education, who see their job as that of guiding children into worth-while learning experiences, and who have the necessary background of experience for effective counseling.

2. *Guidance in the elementary school is an integral part of the teaching and learning process rather than a separate service.* In City A, for example, the major units of work for the primary grades develop out of the community. In one school the third-grade children are developing a unit called "Our City." A section of the city has been laid out in one corner of the room, built to a plan, with streets and railroads properly located. On Main Street there are cardboard business houses, each managed by one of the children. One child is a barber; another is a storekeeper; one boy owns the theater and furnishes the town with motion-picture entertainment; another is a contractor and builds houses; George is a doctor and also a health officer, and he is consulted on problems of community health; Mary and her assistants run the city hospital and take care of the sick and injured. Each of these children has studied his job and understands its function in the community to a surprising degree for a third grader. These children, through their dramatic play, construction, and other learning activities of the unit, are not only learning to read, write, and spell but are developing basic social understandings, thinking seriously of various occupations, and learning to plan and work together.

In this school there are regular health examinations arranged by the city health office working with the local medical group. These examinations are not something removed from the classroom but are a basis of much of the health instruction and guidance for the year. Individual problems of a confidential nature are so treated, but those of a group nature, such as the care of the teeth, exercise, sleep, nutrition, and numerous others, are subjects for group discussion, planning, and executing. The fact that one third of the children of the school had not been

vaccinated for smallpox and that less than half had been inoculated against diphtheria provided a problem for study and counseling throughout the school.

In the upper grades of this school boys and girls are learning to live together socially through planned social hours at noon and physical-education classes in which mixed groups play games together once or twice a week. Rhythmic activities of the many units of work, such as the old-fashioned dances of the unit "Living in the Early Southwest" or Scandinavian dances of the unit "Scandinavian Peoples," furnish many opportunities for desirable social guidance.

3. *Some phases of the guidance program require school-wide and city-wide planning.* Although it is true that the success or failure of the guidance program lies with the individual teacher, some organizing and planning on a wider basis is essential to effective guidance. Leadership for the program is an administrative responsibility, but the success of the undertakings is determined by teacher co-operation and participation.

The following list of organization problems is not complete, but it is suggestive:

Curriculum revision should facilitate the performance of the guidance function and should be developed with this purpose in mind. The program should be flexible and suggestive in nature, rather than formal and binding. It should give the teacher the necessary freedom to develop a good guidance program, and it should provide aid and encouragement. This rather general statement can be illustrated by comparing the curriculum policy of two cities.

In City K the courses of study are systematically organized and the exact work to be covered is outlined. Periodic tests are administered to see that the children are progressing at a satisfactory rate in the required subjects. Teachers find themselves rushed most of the time to get the work covered and to prepare the children for the spring examinations. Health is taught as a class study, with definite subject matter to be covered each semester. History and geography are taught separately, and special teachers come in to teach music and art. Strict records of attendance and tardiness are maintained, and the children are promoted on the basis of their marks in the several subjects. All in all, there is little time to devote to meeting the needs of the children as individuals, nor is the curriculum so organized that this is encouraged except so far as it affects their standings in the subjects of the school. The courses of study, which are chiefly outlines of subject matter with suggestions for teaching, actually hinder rather than facilitate effective guidance. They force the teacher to concentrate on pupil mastery of the subject

matter as outlined, as his success as a teacher is judged by the subject-matter mastery of the children rather than by their ability to solve their problems of living.

The curriculum of City E is organized upon a basis more conducive to effective guidance. There is no closely prescribed body of subject matter which must be covered, nor are city-wide subject-matter achievement tests administered to check on course-of-study requirements. Courses of study are chiefly guides to the teacher, and they are rich in suggestions for making the work more purposeful and more effective. General areas are laid out in the various learning fields, such as the social studies, language arts, and science, but teacher and class are allowed much leeway in the development of the room program. Many of the units suggested for the several grades are definitely of a guidance nature. For instance, the units of the primary grades grow out of the community and offer great possibilities for community exploration. The unit "Industries of Our State" in the seventh grade can be developed so that the children have a chance to examine these industrial activities for vocational potentialities, although the guidance here is chiefly informative in nature, with little expectation that the children will make permanent vocational choices. A part of the work of the eighth year is planning an educational future, especially in regard to the high school. One of the teachers develops this as a unit called "Planning Your Education," and considerable thought and study are devoted to recreation, health, and vocational needs in the planning of the high school program. By the time the unit is completed, each child has visited the high school. He has had a chance to talk to teachers of courses in which he is especially interested or about which he is curious, and has planned a tentative four-year program, with the first-year work definitely scheduled. There is close co-operation between the elementary school and the high school, in order that this can be done. There is no neglect of the development of such essential abilities as reading, writing, and arithmetic; but the satisfactory adjustment of the child to his environment, the development of desirable character and personality traits, and healthful living are considered to be just as fundamental as the three R's.

Staff co-operation is essential to effective guidance. There are many problems of a guidance nature which can be solved only by the staff as a whole or, what is more apt to be the case, by joint action of those members immediately concerned. Adjustment cases usually can be handled best by co-operative action of all teachers and other school personnel contacting the case. In many instances experts outside the school staff will participate. In cases of serious maladjustment, whether it is social, physical, emotional, or mental, intelligent guidance will result only if

those charged with the guidance of the particular child are in general agreement on the procedure to be followed and have a full understanding of the case.

There are many situations other than those involving special problem cases where staff conferences are highly desirable. Some of these situations develop out of temporary problems and others out of permanent problems. The following are a few of the many questions which should be considered by groups of teachers rather than by individuals:

- (1) The improvement of the health and safety program, especially as it involves the co-operation of outside agencies.
- (2) General policies in regard to community excursions and the utilization of community resources. Many of these come well within the scope of the guidance function.
- (3) Problems of parent-teacher co-operation—parent conferences, reporting to parents, Parent-Teachers' Association, and others of a similar nature.
- (4) Conferences with leaders of community welfare agencies. Many of these leaders work in close co-operation with the school.
- (5) Group meetings to study remedial and diagnostic procedures. These are often under the leadership of an expert, if one is available.
- (6) Developing, maintaining, and using cumulative records.

These problems represent the kinds of questions which require group discussion and decision. In many cases the staff will come together as a study group. In problem cases, however, it will become more a clinic and will follow clinical procedure. Both forms of group work are essential to a well-functioning program of guidance in the elementary school.

School-wide and often city-wide planning is essential if the school is to have the services of needed experts. Some cities have regularly organized staffs of experts—medical men, dentists, psychologists, and others; most of the smaller cities and towns do not. Often arrangements can be made with local, county, or state organizations to obtain the expert service needed to aid the school in the solution of problems which require the aid of specialists. Too often this type of service, so essential to the guidance program, is not obtainable or is not used as it should be. Several instances are known where such aid has been provided because the school staffs knew what they needed and sold the idea to the community. Situations have occurred, also, where such services were available but were little used because of the failure of the teachers to see their importance in the guidance program.

Financial aid must be available. George may be unable to get his

work done in school because of defective eyes, but he cannot afford to get glasses; Mary may be ashamed to come to school in her ragged coat, but her parents are unable to clothe her properly; Hazel may be greatly in need of more nourishment than she gets at home. There are agencies organized in many communities to give aid in such cases. In other instances there is need of community education by the school in order that this help may be forthcoming. While the individual teacher can often accomplish a great deal, this problem can be most effectively attacked by the school as a whole. Individual teachers need to be aware of the needs of the children and to be constantly on the alert to find ways and means of meeting them. This often requires individual initiative; in other cases it is chiefly a matter of group action. In any case, the teacher must be ready to do her part if the guidance function is to be performed satisfactorily.

4. *A successful guidance program requires close co-operation with community agencies.* This point has been mentioned several times. A number of communities have organized co-ordinating councils to provide for closer co-operation of all agencies interested in the development of youth. Representatives of the school, the Parent-Teachers' Association, the Boy Scout and Girl Scout organizations, the Y.M.C.A. and the Y.W.C.A., the juvenile court, the churches, the city council, the playground association, the service clubs, and other similar groups meet regularly to formulate and execute plans for improving the community environment for youth. The councils assist in solving difficult problems of delinquency, in obtaining needed medical aid and other aid for children whose parents cannot or will not provide it, and in finding answers to similar problems in the guidance of the children and youth of the community.

A few communities have organized planning groups to aid in the utilization of the resources of the whole community for the purposes of education. The active participation of all groups in the education and guidance of boys and girls is the goal of these planning groups. The achievement of this goal is possible only as there is close school and community co-operation, and as school administrators and teachers exercise leadership in these organizations.

5. *Effective guidance requires close parent-teacher co-operation.* The child is a product of the home, the school, and the community, and the school is not the most important of these in determining the child's manner of reacting in various situations. All three are—or should be—working for the same goals in the education of children, and they can achieve these objectives only if they work together. Because of the intimate relationship of the child and the school and of the child and the

home, the child's community activities are affected greatly by the character of the guidance of home and school. It is highly essential, therefore, that teacher and parents co-operate closely. Teachers must take every opportunity to become acquainted with the parents of their pupils. Some schools are scheduling regular conferences with parents and are replacing the traditional report-card method of reporting pupil progress with the personal conference. This procedure has much to recommend it and is well worth serious consideration. The chief difficulties are the amount of the teacher's time involved and the problem of getting parents in the habit of making regularly scheduled visits to the school. If the teacher is determined to do it, however, it is usually possible for her to see one or both of the parents of each child of a class at least once during the school year. The problem becomes somewhat complicated in a departmentalized system, as each teacher then has too many pupils to make it possible to know all the parents. Then it is probably best for the home-room teachers to be responsible for contacting the parents.

Parent-teacher conferences serve several purposes, not the least of which is the prevention of misunderstandings. The conference should be a time for a personal report on the progress of a child, and it should be planned for by the teacher. She should have given considerable thought to what she will tell the parents, to the questions she will want to ask them, and to any suggestions she may have for co-operative action if there seems need for such action. She should utilize the results of achievement tests, have samples of the child's work at hand, and make use of various cumulative records; but she must use her own good judgment in deciding what to report to each parent and what not to report.

The teacher must realize that parents differ as greatly as the children do, and she must plan accordingly. Some parents understand children and the growth process to a high degree; others do not. Some parents are strict in dealing with their children; others are indulgent or indifferent. Some want their children to experience widely in the aesthetic area and are much concerned with the child's personality; others feel that the chief function of the school is to teach the three R's and that the home and the church will take care of character development. One of the important outcomes of the interview is that in getting to know the parents better the teacher will gain a better understanding of the child.

6. *Effective guidance requires closer co-operation of the elementary and the secondary school.* No longer should completion of the elementary school be considered the end of one phase of education and the beginning of another. Instead, it should mean merely a change of schools and of teachers, with a continuation of the educational process, modified to meet the needs of older children. Teachers in the elementary schools

and in the secondary schools need to work together more closely if they are to understand better one another's work and problems and if they are to act as intelligent counselors of the children either before or after they enter the secondary school.

7. *Effective guidance requires the maintenance and utilization of cumulative records.* Intelligent and effective counseling, whether by the classroom teacher or by a special counselor, is possible only as there is a friendly and frank relationship between the child and the counselor and as the person responsible for child guidance is in possession of adequate information. While no amount of records can possibly substitute for a close personal relationship between teacher and pupil, guidance will be relatively ineffective without well-kept records of the child's interests, abilities, activities, social background, and other essential factors.

These records should be cumulative in nature. The best record forms are so devised that information essential to the performance of the guidance function is accumulated from year to year from the first grade through the secondary school. This information should be organized and maintained in such a way that a teacher can go to the record at any time and get a fairly good picture of the child's physical, mental, and social development from the time he entered school. For instance, the cumulative record should reveal a child's yearly progress in reading and other measurable abilities as indicated by scores on standardized tests; it should present a picture of his activities, abilities, and interests in such fields as art, music, and athletics; and it should contain valuable information on his home surroundings. The cumulative record thus furnishes a rather complete picture of the whole child. It should include the following information:

- (1) Full name, address, telephone number, race, and exact date of birth.
- (2) Family history, including name, race, and occupation of both parents; records relative to broken homes caused by death, divorce, or separation; number of children in family, with information about education and occupations of older brothers and sisters; statements at intervals of two or three years of the economic status of the family; and any special information which will make it possible for later teachers better to understand and guide the child.
- (3) An educational record which includes the results of all achievement, intelligence, special-aptitude, and other standardized tests administered during the school life of the child; teachers' estimates of the child's abilities in the various areas of learning; credits earned; and subject marks, if these are still being assigned

- (4) A record of the child's interests, abilities, and achievement in special areas, such as art, music, drama, athletics, and hobby clubs.
- (5) Records of significant vacation experiences, such as travel, attendance at Scout camps, and summer employment.
- (6) Records of educational and vocational plans at various grade levels of the school system.
- (7) Personality traits as observed by teachers and others.
- (8) A complete record of physical and mental health, including records of physical examinations, inoculations, vaccinations, diseases, operations, and serious accidents, with notes on general physical and mental health.
- (9) Complete histories of serious cases of social maladjustment, ill health, reading disability, and similar problems.
- (10) Anecdotal records of significant behavior as observed by teachers.

Records are of value only as they are faithfully kept and frequently utilized. Their chief value is for purposes of evaluation and guidance. Except as they serve these purposes, they represent time wasted. Most school cumulative records are confidential in nature and are accessible only to members of the school staff.

The attitude of the elementary teacher in the matter of record-keeping is important. The close personal relationships existing between the teacher, the child, and the parents may cause the elementary teacher to question the advisability of taking time from other work to maintain cumulative records. He personally knows most of the parents of his children, and is in close contact with the daily activities of the members of the class. However, he should remember that he is responsible for the child's welfare not only this year but in future years. The child soon will pass from his room to the next higher grade and will go ultimately to the junior high school and the senior high school. As the child goes from the comparatively small elementary school to the larger secondary school and from an undepartmentalized organization to a departmentalized one, he is no longer in a situation where the intimate relationships of the elementary school are possible. The high school teacher, meeting several large classes daily, each for short periods, not only cannot know each child's parents but must spend several months developing a fair acquaintance with the members of his own classes. Unless adequate records have come with the child from the elementary grades, effective guidance in the early months of the secondary school is out of the question, despite the fact that this is a critical period in a child's educational life.

For example, Mary had considerable ability in art but was hesitant

about letting others know of it. Without adequate records, her high school teachers did not discover this talent at once, and Mary was scheduled for a program in which the possibilities for art work were limited.

Or consider the case of Jack, a freshman in high school, who came from a home hard hit by illness and who was working early and late to help support the family. Not knowing the home situation, the teacher demanded that Jack remain after school to complete an algebra lesson. Jack attempted to explain, but was cut off abruptly. Since he felt that his first responsibility was to his job, which meant money for food, he left at dismissal time in order to attend to his paper route. Now he was in difficulty not only over an unfinished algebra lesson but because of out-and-out disobedience. Sternly informed by the principal that he must not only make up his algebra but remain after school three evenings as punishment, Jack left school at noon and did not return. His home was called, and the parents informed the principal that Jack had started for school, but only after begging to be allowed to quit. At this point a sympathetic attendance officer discovered the facts, and a satisfactory adjustment was worked out after conferences with Jack, the principal, the teacher, and the parents.

The cases above are quite typical, and they show the need for adequate records of a cumulative nature and the importance of a guidance concept of education. Mary's program had to be reorganized, a proceeding that could have been avoided if there had been intelligent educational counseling in the beginning. Jack was allowed to become a problem case through sheer lack of guidance on the part of the school and through ignorance of the home situation responsible for the incidents which led to his disobedience.

It is the responsibility of the elementary school to see that essential records accompany the child into the secondary school, so that effective counseling may be possible.

PROBLEMS FOR STUDY AND DISCUSSION

1. The statement is often made that the teacher of the modern school must have a guidance concept of education or that he must be guidance-minded. Just what are the specific implications of this point of view?
2. In recent years there has been a trend away from departmentalization in the elementary school, in the junior high school, and even in the senior high school. Is this desirable or undesirable from the point of view of effective guidance? Defend your answer.
3. Until recent years guidance has been considered more a function of the

- secondary school than of the elementary school. Why? In what, if any, aspects will the guidance problem differ at the various levels—elementary school, junior high school, senior high school?
4. Should guidance be a directing or a leading process? Give reasons for your answer.
 5. What are the advantages of the "clinic procedure" for seeking solutions to cases of serious maladjustment? What is the place of the expert in the solution of difficult behavior, health, and other guidance problems? Illustrate.
 6. Some educators argue that guidance is a separate school service, along with administration and instruction. Others maintain that guidance and curriculum improvement are inseparable and must go hand in hand. Select one of these points of view and defend it.
 7. In what ways can the resources of the community be utilized to develop an effective guidance program in the elementary school? Make a survey of your own community with this in mind.
 8. As a teacher in the upper grades of a small city elementary school, you are planning a conference with the parents of one of the children of your class. What particular problems should be discussed? What will you tell the parents about the child? What will you want to learn from the parents? What will you need to know about the child and the parents in order to make the conference valuable both to the parents and to yourself?
 9. Why is there a need for complete and cumulative records in the elementary school? What records are needed? Discuss the need for each type of record.
 10. You have been placed on the Cumulative Record Committee for your county. What type of record form will you recommend? Make out a sample form, showing the information desired and the organization of data on the record.

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14 · Additional Factors in Teaching Success

T*his chapter is a discussion of a number of problems of teaching which are of vital importance to the success or failure of the teacher but which do not seem to fit especially well into the other chapters or to justify a chapter apiece, considering the purpose of this book.*

Many teachers, especially beginning teachers, fail not so much because of their lack of understanding of good teaching procedures but because of factors external to the classroom itself. While some of the problems discussed here are primarily those of the classroom, most of them relate to out-of-class activities.

THE SCHOOL AS A CO-OPERATIVE UNDERTAKING

It cannot be emphasized too strongly that the school is what the principal and the teachers make it. Adequate buildings, equipment, and instructional materials are essential to a good educational program; yet some "poor" schools are well equipped, and many "good" schools are inadequately equipped. A well-educated faculty, functioning as an integrated unit, is the first requirement of a good school; other things are of secondary importance.

There must be loyalty and co-operation among the staff members of a school. The principal is the recognized leader of the school. He is responsible to the superintendent and, through him, to the board of education and the community for the conduct of the school. In like manner, each teacher is responsible to the principal. If the school is to educate for democracy, however, it must be organized and run in a democratic manner, and this is possible only if there is a friendly, co-operative, loyal spirit among the staff members. Teachers must recognize the leadership responsibilities of the principal, and the principal in return must feel that the teachers are contributing members of the staff whose advice is to be desired and considered.

The school must function as a well-co-ordinated whole. A well-integrated school has developed a common philosophy of education and is free from internal strife. All need not think and act alike, but there must be a commonness of purpose. Principals have been heard to speak with pride of the fact that within their schools one can find teachers whose philosophies and practices of education range from the most conservative to the most progressive. If the school existed primarily for the benefit of the teachers, such a condition might be recommended as being democratic. But since the chief purpose of the school is to serve the best interests of the children, the school should work as a unit to improve its educational program. For a child to attend school first in a formal classroom, where his chief responsibility is to get his assigned lessons and do the other things he is told to do, and then to go to an informal classroom, where initiative and creativeness are encouraged, and to return later to a dictatorial school environment is not beneficial. The harmful effect on children of being reared in a family in which one parent is dominating and stern in his relations with the children, and the other parent emphasizes the child's acceptance of responsibility and encourages originality and initiative, is well known. A similar situation in the school cannot but detract from pupil integration and therefore be harmful in its effects.

THE TEACHER AND COMMUNITY ETHICS

Communities in general demand higher standards of conduct of their teachers than of the average citizen. This is as it should be. The development of pupil character and personality is a major responsibility of the school, and this is possible only as the teachers themselves are of high moral character. This does not mean that teachers must be goody-goody or that they must avoid dances, parties, and similar activities. Their moral conduct, however, must be above reproach. If a teacher is not willing to lead the high type of life that is demanded by the majority of the community, he should consider some other line of work. After all, he is a teacher by his own choice, and this is one of the conditions to which he agrees when making the choice.

It is true that some communities make unreasonable demands upon their teachers. If a teacher finds himself in such a community, he should make the best of it by conforming as demanded and look for another position at the end of the year. To violate community ethics, regardless of the justification, may mean leaving at the end of the year under circumstances that make it difficult to obtain another position.

BECOMING ONE OF THE COMMUNITY

Most communities want their teachers to live in the district and to take an active part in community enterprises. This is especially true in the smaller communities, where the school is the center of activity and where the teachers are expected to be community leaders. One of the problems of the teacher in the small town is to avoid accepting too many of these responsibilities. A teacher should be active in community affairs but should not try to run the community. The responsibilities which are accepted should be well discharged, whether they involve teaching Sunday school, acting as Boy Scout or Girl Scout leader, or serving as an officer of a lodge or a service club. If a teacher enjoys teaching a Sunday school class or leading a Scout troop or a 4-H Club, he should do so; but he should not accept the responsibility merely because he feels that he is expected to accept it. An unenthusiastic leader can soon kill an activity.

PARENT-TEACHER CO-OPERATION

The modern school is increasingly aware of the necessity of close parent-teacher co-operation in the education of the child. At a time when the teaching of the three R's was conceived to be the chief function of the elementary school and it was believed that the teacher's responsibility for the child ended when the child left the playground, this close and friendly relationship, while desirable, was not considered essential to the educational process. As the development of character, of personality, and of the capacity for effective social living was accepted as a fundamental of education, however, it became evident that the home, the school, and the community must work as a unit toward this end. Pupil growth in citizenship, personality, and character does not result from studying about these things but by actually participating in activities that lead to their development. The school is only one of the many agencies affecting the experiences of the pupil, and probably it is not so important as the home in the guidance of the child.

There are various ways of achieving a closer relationship between teacher and parent in the educational process. One of the most effective is the Parent-Teachers' Association. This organization, if well guided, can become an instrument of immeasurable good, not only in developing a friendlier spirit between patrons and the school but in interpreting the school program to the community. The full potentialities of this association can be developed only if the teachers and the principal realize their individual and collective responsibilities in the organization.

Time spent by the teacher in helping to make the Parent-Teachers' Association a successfully functioning group is time exceedingly well spent. This is not to minimize the necessity for parent participation and leadership. The Parent-Teachers' Association is a mutual affair. Lack of either parent or teacher interest and enthusiasm will kill the organization or allow it to become a liability rather than an asset. Teachers who merely tolerate the association, without seeing its possibilities for more effective education, need to re-evaluate their educational aims and philosophy. The most worth-while aims of education cannot be achieved by the school alone, nor can the school of today discharge its responsibilities except as parents and teachers work together in the educational process and have a mutual understanding of one another's problems and aspirations.

PERSONAL FACTORS AND THEIR RELATION TO TEACHING SUCCESS

Children love happy, well-dressed, enthusiastic teachers. Conversely, they do not like grouchy teachers or teachers who cannot control their emotions before the class. Children of all grades are quick to note whether the teacher pays attention to personal appearance—is well-groomed. Parents are quick to note the teacher who is overdressed or improperly dressed for the schoolroom.

Many teachers fail to realize the extent to which their own dispositions affect the class. Cheerfulness and enthusiasm are contagious and spread from teacher to class. Many promising persons have failed to make a success of teaching because of a lack of, or a loss of, these qualities. Poor health, worry over financial, social, or other personal matters, and emotional immaturity are contributing factors to loss of a happy disposition and hence to teaching failure. The actor's philosophy that "The show must go on" is a good one to adopt. Adults may make many allowances over a period of time for a person in distress, and children are sympathetic and tolerant for a time. But if pupils are compelled to work too long under a teacher who, because of illness or emotional disturbance, is morose, they feel the deadening effect of this attitude and begin to dislike the classroom situation and even the teacher.

THE TEACHER IN A CONSERVATIVE SCHOOL

Teachers desirous of applying modern philosophy and psychology to the teaching situation often ask, "What can I do? My principal doesn't believe in teaching the way you suggest. He says the community won't stand for it. Can I teach contrary to his wishes?"

Any teacher who goes into a community where education has been conducted along conservative lines must recognize the plain fact that there can be no sudden departure from traditional procedures without the danger of an unfavorable reaction from the community and from other members of the school staff. If the teacher is willing to recognize this and is still not discouraged, there is a chance of developing a modern classroom curriculum in three or four years. After all, the principal and the community are interested in results. If a teacher is willing to go slowly, is careful not to arouse antagonism by casting reflections upon those who disagree with him, and can win the patrons, he can conduct his classes in a modern manner without being too greatly criticized, and in many instances he can be instrumental in producing considerable improvement throughout the school system. Any such change, however, must be evolutionary, not revolutionary. The first task is to win the confidence of the principal, the staff members, and the community. This is possible only as the teacher is tolerant and respects the beliefs of others without surrendering his own convictions. A young teacher, especially an inexperienced one, who goes into a conservative community with the spirit and methods of a reformer is more likely to create distrust and opposition than to win converts. Changed educational philosophy is a matter of growth, not a sudden switch from one technique to another. It takes years, rather than months, for a school to progress from traditional ways of educating to more progressive ways.

It is difficult for a young, well-educated teacher to work in an extremely conservative situation without becoming discouraged, especially if he feels that the administration and most of the teachers are unsympathetic, even though tolerant. The easy way out is to conclude that progressive teaching is impossible in such a situation and to conform to existing standards. This is one of the dangers against which to guard. If the teacher can keep from losing heart and can at the same time accept the fact that progress must be made slowly, much can be accomplished without too great a compromise with ideals.

TEACHING—PROFESSION OR JOB?

The past few decades have seen teaching in the United States undergoing a process of change from an occupation requiring practically no special training to a profession requiring the same high degree of education as the other professions. Many states still allow persons to teach who are woefully unfitted by reason of both education and personality to guide the development of the nation's children. The more progressive states, however, have advanced their

training requirements to four years for elementary teaching. This makes possible a program of teacher education far superior to that of past years, and it tends to discourage the use of teaching as a steppingstone into other lines of work. Teachers are rapidly changing from "school-ma'ams" to respected community leaders, and school administrators are taking their proper places in the councils of the community.

Teaching will grow professionally only as teachers work together toward common ends and strive to improve themselves and their profession. City and county teacher associations and state and national educational organizations have been largely responsible for the changing attitude toward teaching and teacher education and for the greatly improved economic status of the teacher. Membership and active participation in these organizations is not only a responsibility but an opportunity for contributing to the advancement of the cause of education. Active membership in local, county, state, and national educational organizations is an indication of professional interest and growth. It is not a question of whether a teacher can afford to belong but of whether any teacher can afford not to belong.

BECOMING A MASTER TEACHER

Education, as has been emphasized, is a process of experiencing—of growing and developing. This principle is as true of teacher growth as it is of child growth. The master teacher is one who not only possesses a happy combination of initiative and originality, intelligence and pleasing personality, but also strives to improve himself and his teaching through continual study and application of the best educational thought and practice. Other things being equal, a teacher who has experienced widely in the many worth-while fields of human activity is superior to one whose active participation has been limited. This applies not only to those areas forming the curriculum of colleges and universities but to participation in the social, economic, and political activities of the community, state, and nation.

The rather popular university pastime of arguing the relative merits of professional preparation versus subject-matter preparation is interesting, but it is of no more concern to us here than the old favorite debate proposition of heredity and environment. Both general education and professional education are requisite to good teaching. A wide experience background, a love for and an understanding of children, and a functional understanding of the best educational thought are essential to the master teacher, and these come not through college courses or several years of experience alone but through an extended

period of constant study and application. A four-year period of teachers' college or university study is entirely too short a time to develop a finished product professionally or culturally. A start can be made, but only a start. The rest is a matter of time, study, and experience of the type that leads to continuous improvement. Seven years "in a rut" are of little or no value.

Suggestions for study for one ambitious to become a master teacher would include almost every area offered in the modern university and some which are not. It is hard to imagine a really superior teacher who is not well informed in the fields of educational measurements, child and adolescent psychology, guidance, and curriculum principles and practices. Not only must he be well versed in the principles and philosophies of educational practice but he must be skilled in many of the daily activities of the classroom and the playground, ranging from building a truck or an airplane to throwing a baseball. No teacher, of course, can be an expert in every undertaking of the modern school, but every teacher should be able to manipulate the common tools of the social heritage, and he should be a leader in at least one field of human endeavor.

The good teacher is a well-informed person. Further study in and out of school should be in such fields as science, social studies, the arts and crafts, oral and written communication, and other areas so essential to living a full and effective life in this particular social order. Only a small amount of the subject matter with which the teacher works in the school of today is to be found inside textbooks and reference books. The day is long past when being an expert in one or two fields qualified one for teaching in either the elementary or the secondary school; nor does a knowledge of what is contained in the required texts alone make possible good teaching. The child in the modern school is doing things, not just studying about things. The effective teacher must be a leader in this "doing" rather than one who merely tells the children what to study and who tests them to see if they have done the required tasks.

One often hears the question, "How often should a teacher go to summer school?" This question, of course, cannot be answered dogmatically, as much depends upon the extent of the individual's participation in educational conferences and study groups, upon his individual reading, travel, and other activities during the school year and the summer period, and upon the time which had elapsed since the last period of college or university study. The opportunities for serious study in cultural and professional areas and for participation in group discussions and other activities under the expert leadership one finds in the

better summer sessions should not be overlooked by the teacher who desires to advance professionally. Certainly every few years should find the teacher in summer school, regardless of whether he has any interest in obtaining an advanced degree.

The chief purpose of further study should be to prepare oneself to perform better as a leader of children. The baccalaureate degree itself, while a requirement for teaching in many states, is not a guarantee of effective teaching. It is, however, an indication of cultural and professional growth, and as such it often opens up opportunities which would otherwise be closed to the teacher. An increasingly greater number of cities are requiring degrees for their new teachers, regardless of the state regulations, and many are granting increased pay to teachers with a master's degree.

In recent years the author has often heard this or a similar lament from experienced teachers: "I've gone to a number of summer schools in several different states. I always took those courses in which I was interested and which I thought would be of help to me in my teaching but paid no attention to degree requirements. Now I find that only a small portion of my total credits will be accepted for a degree. I have more than the required number of hours, but I must go to school for at least a year to complete a teaching major and fulfill residence requirements." While there are undoubtedly many advantages in sampling the offerings of this and that summer school and of taking only those courses of special interest and immediate practical value, there are equally strong arguments for choosing a good teachers' college or university and planning summer work in the light of degree requirements. These requirements, in general, are not too rigid, and the obtaining of the bachelor's degree or of an advanced degree opens up new avenues for professional advancement well worth consideration by one who intends to remain in the profession.

It has often been said that teaching is an art. It is equally true that teaching is a scientific undertaking. An understanding of the scientific method, with its experimental approach to education, and an inclination to use it in teaching is a part of the master teacher's make-up. The application of the scientific method to teaching has been responsible for much, if not most, of the rapid progress of the past few decades. To be scientific does not mean that one must be always experimenting with classroom procedures and the curriculum, but it does mean that one plans carefully, that he measures as well as possible the results of instruction, that he is receptive to new ideas, and that he strives to apply the best thought in psychology to his teaching. It means, further, as has been stressed before, that he understands children and the way they learn,

and that he strives to adjust the curriculum to the needs, the abilities, and the interests of the pupils.

• PROBLEMS FOR STUDY AND DISCUSSION

1. Does a community have the right to ask a teacher to live on a somewhat higher moral and social plane than the average member of the community? Develop a statement of an acceptable philosophy regarding this problem.
2. Most communities, especially small ones, want and expect their teachers to live in the community and to take an active part in community activities. Aside from any selfish motive of the community itself, can this point of view be defended on the grounds of good educational philosophy? Why or why not?
3. In what ways do the size and type of the community (agricultural, industrial, and so on) affect the social activities of the teacher and the acceptability of certain types of activity?
4. Consider that you have been selected as a teacher of a particular grade in a conventional type of school. Your principal is interested in, but is not a leader of, modern classroom practice. Most of the school experiences of your children have been in that particular school. You expect to stay in the community several years and are desirous of developing a modern program. What would be your approach in regard to each of the following?
 - (a) Getting permission from and co-operation of the administration.
 - (b) Developing and maintaining happy working relations with other members of the school staff.
 - (c) Educating the parents.
 - (d) Developing the program in the classroom.
 - (e) Obtaining necessary materials.
5. Assume that you are determined to become a master teacher. Lay out a program of study and experience to this end.
6. Make a frank and honest evaluation of yourself, considering personality, disposition, enthusiasm, emotional control, and similar factors affecting your possible classroom success. What can you do to overcome recognized weaknesses?

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Index

- Abilities, essential, 127-128
- Ability, estimates of, 184-185
- Appreciation, 125-126, 196, 270-276
 - of masterpieces, 276-277
 - understanding and, 273-276
- "Areas of experience," 194
- Arithmetic, changing views of, 241-242
 - drill in, 241-244
 - necessity of, 230
 - progress in, 243
 - teaching of, 243-244
- Art work, in conservative school, 8-9
 - in modern school, 66, 95, 105, 133, 159-160, 162, 201, 210, 238, 268-269
- Attitudes, 125-126
- Audio-visual aids, 30, 35, 70-71, 134-135, 140, 206-209
 - method of use, 206
 - suggestions for, 207-209
- Building, *see* Construction
- Card files, for individual records, 240, 250
- Charts, 50, 97-99, 101-102, 235
- Child interest, doctrine of, 120-121, 217-218
 - lack of information about, 254-255
 - see also* Goal seeking
- Citizenship education, 23-25, 196, 199, 211, 215
- Classroom organization, 170-171
- Community ethics, 316
- Community relations, 29, 153, 211, 226-227, 308, 317
- Community-centered school, 29, 211-212
- Compartmentalization, in school, 202, 221, 311
- Competition, argument against, 180-184
 - argument for, 37, 180
- Composition work, *see* Self-expression
- Compositions, original, 93-94
- Conservative education, 20
- Conservative school, 4-11
 - progressive teacher in, 318-319
 - sample schedule in, 5
- Construction, 50-53, 70-71, 75-79, 133, 141, 159, 164-165, 242
 - community relations and, 153
 - co-operation in, 143-144, 148
 - criticism and, 145
 - development of skill, 144
 - disposal of products, 150
 - group planning, 143
 - justification of, 65-66
 - materials of, 65-66, 122, 148-150
 - models, 150-151
 - need for purpose, 146
 - noise, 151
 - organization for, 147-148
 - outlet for energy, 144
 - planning and authenticity, 146-147
 - stimulus to investigation, 144
 - understanding and, 144
 - varying activity, 145
- Consumption, education for, 198
- Cooking activity, 56-65
 - justification of, 65
- Core curriculum, 192-201
- Creative expression, 20, 26, 29, 32-33, 95, 133, 140-141, 158-165, 262, 267-277; *see also* Self-expression
- Creative process principle, 32-33
- Cursive writing, *see* Writing
- Curtis, Francis D., quoted, 224-226
- Deduction, 224-225
- Democracy, the school and, 191
- Democratic education, necessity of, 24
- Demonstrations, 96-97, 106
- Departmentalization, *see* Compartmentalization
- Differentiation within individual, principle of, 32
- Discipline, 168
 - maladjustment and, 169-170
 - problems, 172-175
 - promotion for, 169-170

- Discussion, 157-158
 pupil participation, 158
 Dramatic play, 48, 55, 73-74, 89-95, 138,
 145-146, 154, 159-165, 242, 253
 co-operation in, 161
 self-confidence and, 161
 social understanding and, 162
 spontaneity, 161
 stimulus in other activities, 162
 Drill, 40, 241-245, 268, 274

 Education, democracy and, 23
 guidance view, 297
 Educational aims, 279-281
 Educational philosophy, source of, 23
 Educational Policies Commission, 195-
 199, 215-216
 Electives, 201
 Eugene, Oregon, core curriculum, 200-
 201
 statement of aims, quoted, 125-128
 Tentative Scope and Sequence Chart,
 quoted, 194-195
 Evaluation, 138, 279-294; *see also* Tests
 and Self-evaluation
 Experience principle, 29-30, 130, 159-
 160, 210, 253-254
 Experience unit, 44-66, 68-117, 221-
 223, 235-236, 244
 aims, 125-130
 concept of, 44
 planning, 122-139
 selection, 120-122

 Family, education and, 198
 Farm, unit on, 48-51
 Field trips, 18-19, 47-50, 59-60, 136-
 138, 140-143, 204, 227, 242
 home and farm unit, 47-50, 59-60
 parents' permission, 142
 prearrangement, 142
 purpose, 142
 responsibility and control, 142-143
 transportation, 143
 weather unit, 74-75, 80-89
 Financial assistance to pupils, 307-308
 Fountain pens in school, 249
 Frustration, results of, 37, 145

 Generalization, 225
 Goal seeking, principle of, 33-34, 158
 Grades, *see* Marks
 Grammar, learned through experience,
 253-254
 Gray, William S., quoted, 231
 Guidance, *see* Teacher guidance

 Health and education, 26, 196-197, 215-
 216, 218-219, 223
 Home, unit on, 45-66
 unit on, outcomes, 63-64
 Home-school relation, 27-28, 38, 173-
 174, 196
 Honor system, 183

 Individual difference principle, 31-32
 Induction, 225-226
 Insight principle, 34-35
 Intelligence quotient, 286-287
 Interview, 104-105

 Leadership, among pupils, 128, 170
 Letter-writing, 72, 79-80, 85-86, 91,
 98-100, 253
 Library, 208-209
 Literature, 93, 237-238, 271-273
 Lunt, Jane, quoted, 69-117

 Magnolia School, unit in, 68-117
 Manuscript writing, *see* Writing
 Marks, 176-177, 179-185
 as rewards and punishments, 33
 competitive, 180-184
 Materials of instruction, 123-124, 134,
 203-209
 Mathematics, *see* Arithmetic
 Maturity level, 122
 Michigan, University of, school records,
 294
 Motion pictures in school, 16, 19, 134,
 140, 204, 206-209
 Movement of pupils, 171
 Mueller, Maude, quoted, 45-66
 Music, in school, 16-17, 95, 105, 159-
 160, 162, 201, 210, 238, 272, 274-
 276

 National Society for the Study of Educa-
 tion, 216, 231
 Needs concept, 26-28, 254

 Objective tests, *see* Tests
 Observational records, 291-294

 Palm School, unit in, 45-66.
 Parent-teacher co-operation, 308-309,
 317-318
 Parent-Teachers' Association, 62, 153,
 317-318
 Personality growth principle, 28-29
 Pets, unit on, 45-48
 Post office, unit on, 252-253
 Practice, *see* Drill

- Preplanning, 122-137
 - by group, 136-137
 - problems, 123-125
- Program of studies, 175-176
- Progressive education, 20
- Progressive school, 4, 11-19
 - sample schedule in, 13
- Promotion, 169-170, 185-187
 - double, 185-186
- Pupil participation, 158, 170, 175
- Purposeful drill principle, 40
- Rationalization, 37
- Reading, ability for, 34, 37
 - charts for, 50, 235, 247
 - concept of, 230
 - experience unit and, 235-236
 - intermediate and upper grades, 236-237
 - necessity of, 191, 197, 230
 - progress in, 232-233, 237-239
 - readiness for, 32, 145, 186, 232-234
 - records of, 240
 - remedial, 239
 - teacher guidance in, 236
 - textbooks and, 205, 234-236, 239-240
- Records, school, 291-294, 310-312
- Recreation, 198, 201
- Report, informal letter, 176-179
 - advantages, 176-178
 - disadvantages, 178-179
- Report cards, 176-177
- Reports, 132-133, 155-157
 - requirements for, 156-157
- Required subjects, 193
- Research, 100, 130-133, 154-155, 158, 164
- Rhythms, 74, 89-92, 159-160, 201, 270, 275
- Riverside, California, progressive education in, 45-66, 68-117
- School, purpose of, 190-192
- Science, education and, 196, 201, 214-227
 - health and, 218-219, 223
 - not a separate subject, 219-222
 - pupil interest in, 217-218
 - teacher education for, 227
 - teacher guidance in, 219-227
- Scope, 193
- Scrapbooks, 105
- Security necessity principle, 38
- Self-evaluation, 281-282
- Self-expression, ability of, 261-262, 267-277
 - appreciation and, 270
 - oral and written, 252-255
 - techniques of, 254-255, 267-269
- Self-realization, 197-198
- Sequence, 193, 199
- Social desirability principle, 25-26
- Social functions, 194, 196
- Social-living curriculum, 192, 200-203
- Spellers, 251
- Spelling, instruction in, 250-252
 - oral, 251
 - rules of, 251-252
- Staff clinics, 173, 307
- Subject matter, 196, 199-201, 203-204, 209-212, 218, 289
- Subjective tests, *see* Tests
- Successful achievement principle, 36-37, 270
- Summer school for teachers, 321-322
- Teacher, preparation of, 320-323
 - rating of, 288
 - status of, 319-320
- Teacher guidance, 120-121, 128, 137-142, 169-171, 219-227, 267, 297-312
 - broad planning of, 305
 - dramatic play, 163-165
 - experts needed, 307
 - function, 298-299
 - need for, 299-300
 - organization problems, 305-308
 - orientation, 302-303
 - social, 300-302
- Teaching success, 315-323
 - community ethics and, 315
 - co-operation and, 315-316
 - personal factors in, 318
- Tests, 138-139, 281-291, 310
 - achievement, 288-290
 - adjustment, 283-285, 291
 - aptitude, 281-283, 287-288
 - diagnostic, 281, 283, 290-291
 - for evaluation, 236-282
 - intelligence, 281-283, 286-287
 - objections to, 289
 - objective vs. subjective, 285-286
 - on weather-unit, 107-116
 - reasons for, 281-282, 288-289
- Textbooks, 204-206, 234-236, 239-240
- Thorndike Laws of Learning, 241-242
- Total situation principle, 35-36
- Transfer of learning principle, 39-40
- Understandings, 126-127, 129-130, 141
- Unit of work, *see* Experience unit

328 *Index*

United States Forest Service, 80

United States Weather Bureau, 69, 97-
100

Vocational guidance, 303

Voice culture, 255

Weather, unit on, 68-117

Workbooks, 204-205, 235

Writing, 245-255

 cursive vs. manuscript, 246-248

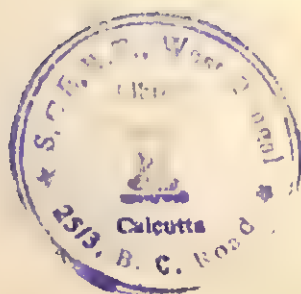
 drills in, 245, 248-249

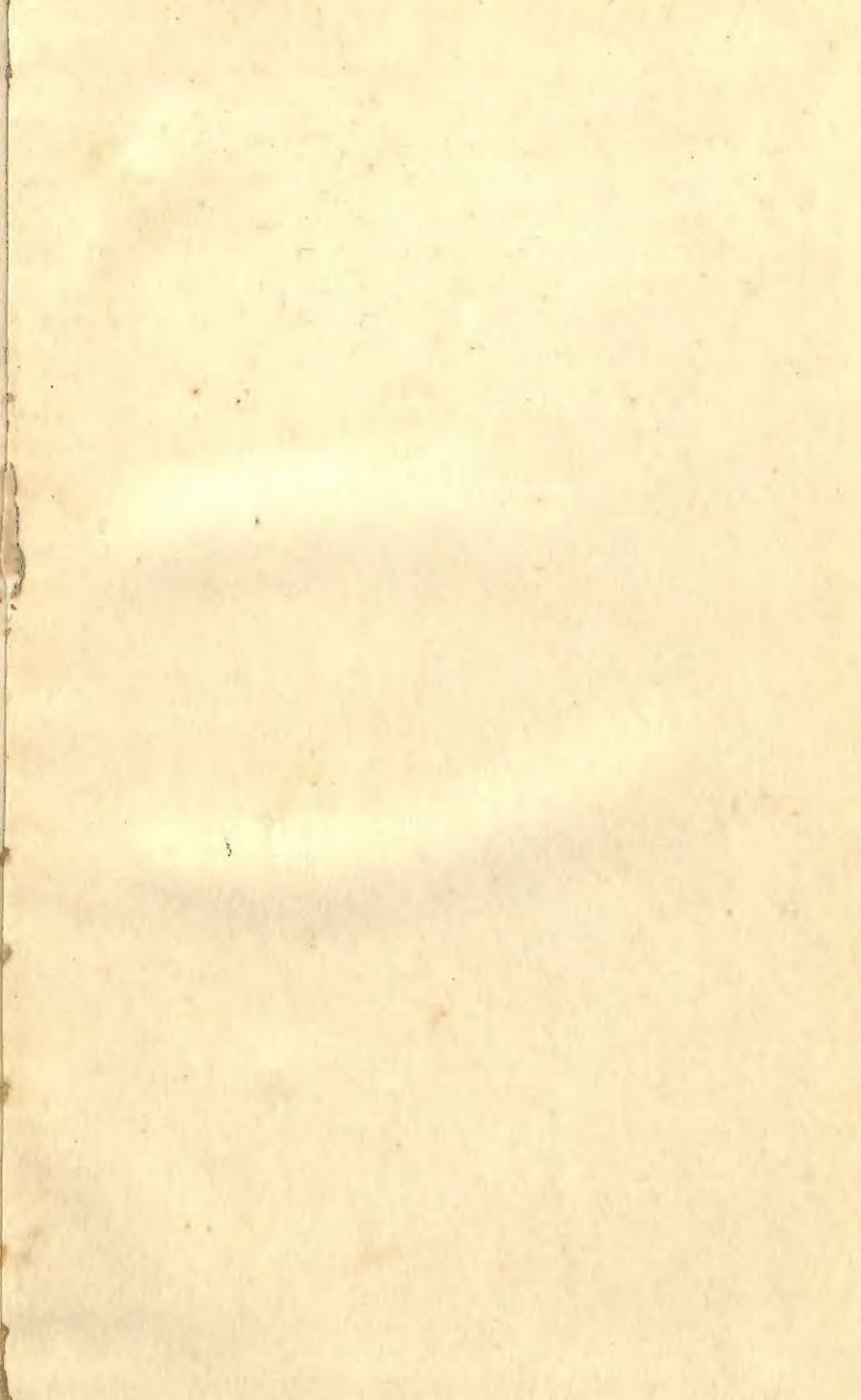
 instruction periods for, 249

 necessity of, 191, 197, 230, 245

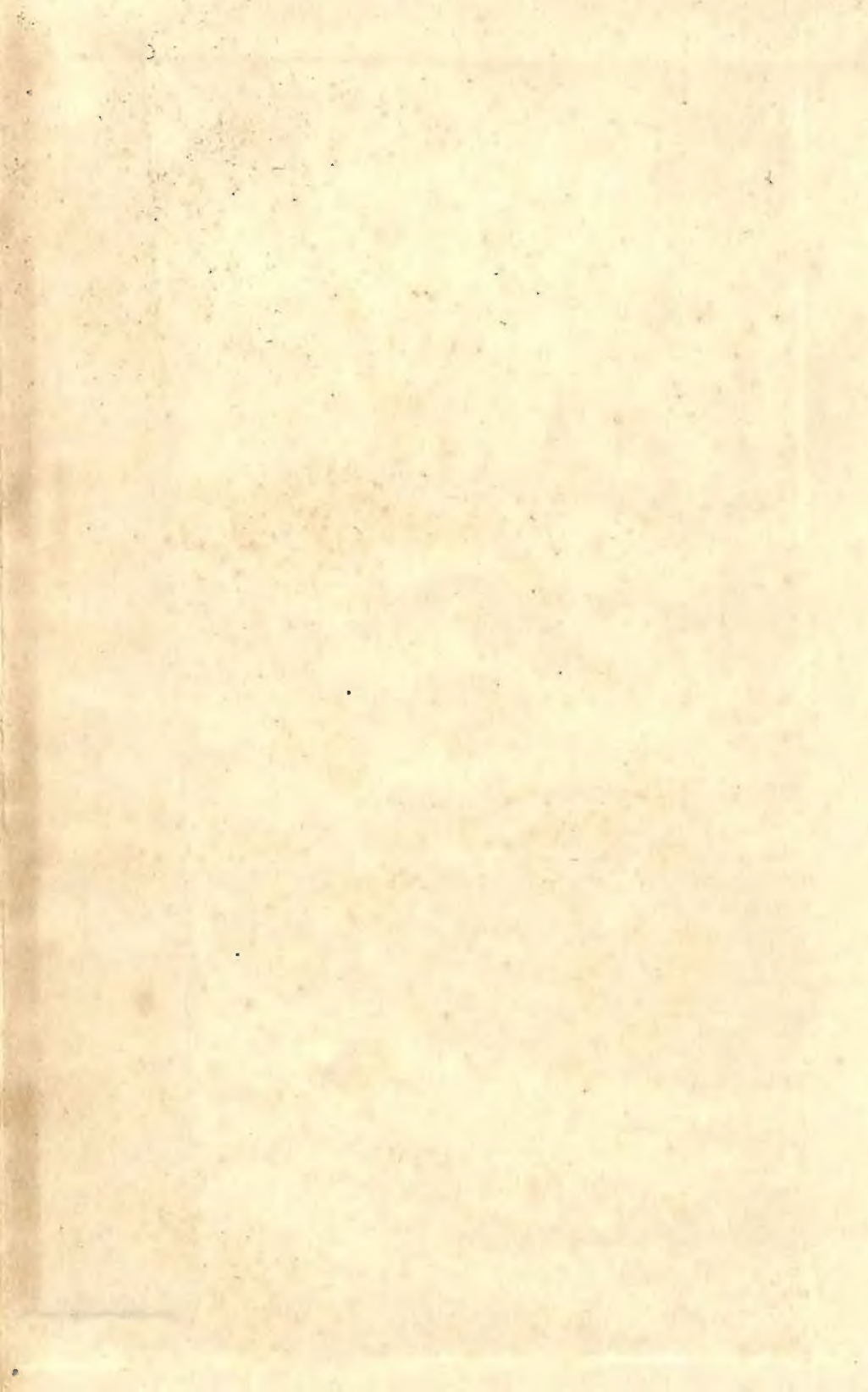
 posture for, 248-249

 readiness for, 245-246









371
HAC

V 16